

Marine Review

SHIP OPERATION

SHIPBUILDING

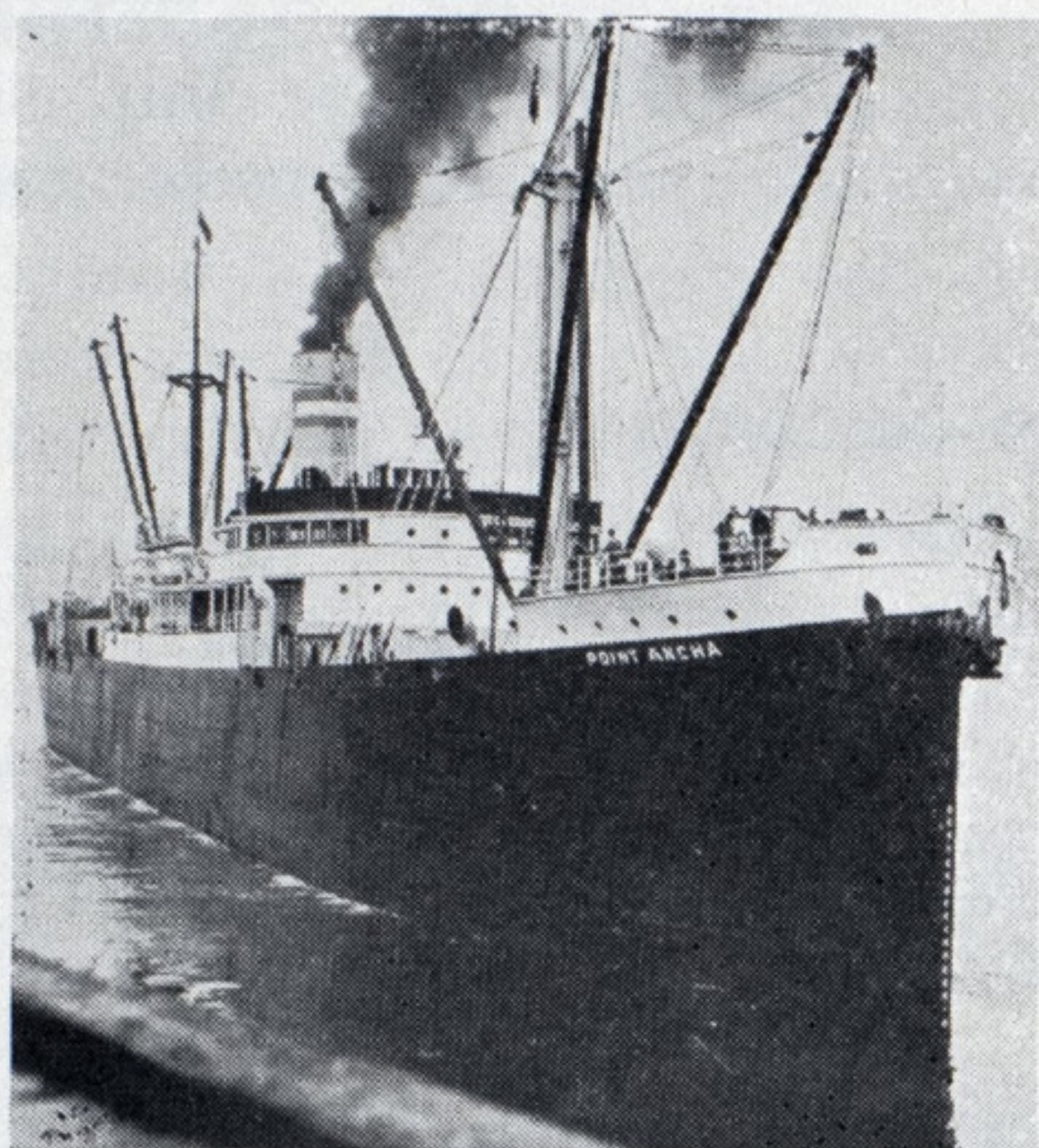
CARGO HANDLING

The National Publication Covering the Business of
Transportation by Water

CLEVELAND

FOUNDED 1878

NEW YORK



Published monthly by
The Penton Publishing Co.
Cleveland, Ohio, U. S. A.

Cleveland Office, Penton Bldg.
A. H. JANSSON, EDITOR
F. V. COLE, BUSINESS MANAGER

New York Office, 220 Broadway
R. D. MacMILLAN, EASTERN MANAGER
E. C. KREUTZBERG
B. K. PRICE

Chicago Office, 1118 Peoples Gas Bldg.
L. C. PELOTT
W. G. GUDE

Pittsburgh Office, 507-8 Oliver Bldg.
S. H. JASPER
E. A. FRANCE JR.

Washington, D. C. Office,
1050 National Press Building
L. M. LAMM

London Office, Caxton House
Westminster, S. W. 1
VINCENT DELPORT

CONTENTS

Vol. 64

February, 1934

No. 2

	Page
Editorial	7
Delmarva, Ferry Steamer, Enters Service.....	8
By R. D. MacMillan	
European Shipping, Review and Forecast	10
By F. C. Bowen	
Seaway Treaty Approval Urged by Roosevelt.....	12
Performance of Diesel Tanker in Service.....	13
Port Chalmers, Twin Screw, British Motorship.....	14
Safety, How Practical Results Are Achieved.....	15
By R. R. Howard	
Heimann, Director, Shipping Board Bureau.....	17
Welded Structures, Design for Efficiency.....	19
By Everett Chapman	
World Shipbuilding, Slight Upward Trend.....	21
Shipping Policies Under New Deal	23
Maritime Law—Late Decisions	24
By Harry Bowne Skillman	
Ports—Marine Business Statistics Condensed.....	25
New Construction, Ordered and Contemplated.....	26
Bunker Prices—Domestic and Foreign.....	27
Equipment, Used Afloat and Ashore.....	28
Stevedoring and Dock Management Progress.....	32
Cargo Handling by American-Hawaiian Co. By Emmett Johnson Jr.	
Useful Hints on Cargo Handling	35
Up and Down the Great Lakes	36
Personal Sketches of Marine Men	39
Sidney E. Smith, Boland & Cornelius By Frances Dowdell	



MARINE REVIEW is published monthly on the first of each month by the Penton Publishing Co., Penton Building, Cleveland, O. JOHN A. PENTON, Chairman of the Board; C. J. STARK, President; J. D. PEASE, Vice President; F. V. COLE, Secretary. Member, Audit Bureau of Circulations, Associated Business Papers Inc., and National Publishers Association. Subscription in the United States and its possessions and in

Cuba and Mexico, \$3 per year; single copies 35 cents, back numbers over three months 50 cents. Subscription in Canada \$4 per year; in Great Britain and other foreign countries £1 per year. Cable addresses: Penton, Cleveland, and Irotrapien, London. Entered in the post office at Cleveland, O., as second class matter under the act of March 3, 1879. Copyright 1934 by the Penton Publishing Co., Cleveland, O.



COMING!

April Distinctive Ship Issue

Marine Review

Featuring American Shipbuilding Progress

Plan Your Advertising Now

Make sure your advertisement appears in the April Distinctive Ship issue of MARINE REVIEW, where it will be seen by marine men responsible for ship design, shipbuilding, and ship operation.

Distinctive Ship Section Annual Feature

Ship owners, operators, shipbuilders, naval architects and marine engineers find the Distinctive Ship Number of Marine Review of greatest usefulness, because it gives them in one place, under one cover, the most definite and accurate information on every type of ship recently completed. The following quotations from letters received demonstrate the practical value of this issue.

Shipyard executive:

"The April issue certainly embodies useful and valuable information on various vessels, the accuracy of which is of prime importance."

Prominent steamship manager:

"Your Distinctive Ship issue showing various types of vessels with concise descriptions we consider particularly useful as a reference volume."

New York marine engineer:

"We use the section devoted to Distinctive Ships as it is of special interest and valuably informative."

Prominent naval architect:

"The April number of Marine Review serves a very useful purpose in bringing before the profession in one place the salient points of progress of the last year."

This important and exclusive presentation of up-to-date American shipbuilding data is of unusual interest to every responsible person connected with the marine trade.

All the Distinctive Ships and shipbuilding information is grouped in a special section. The attention value of your advertisement appearing in this section is apparent. Many concerns each year take advantage of this outstanding opportunity to tell about their products and service in an effective way. Only full pages appear in this section. Early reservation of space is suggested, copy to reach us on or before March 15. The Distinctive Ship Number is out on April 1.



Marine Review

220 Broadway
New York City

Penton Building
Cleveland, Ohio

135-M

Marine Review

FOUNDED 1878

SHIP OPERATION

SHIPBUILDING

CARGO HANDLING

Volume 64

February, 1934

Number 2

A New Deal to be Given American Shipping

IN PROMISING a new deal for American shipping Secretary Roper will have the vigorous support of all who are interested in creating a strong and efficient merchant marine to advance the trade and prosperity of the United States. That a new deal is needed is apparent from his own investigations, as revealed in his recent announcement on new shipping policies, as well as the pertinent facts which may be sifted out of the voluminous testimony before the senate committee.

It is necessary, however, that this new deal should be based on sound judgment and a full appreciation of the true interests of the nation as a whole in the establishment of a privately operated modern merchant marine.

Certainly everything should be done to eliminate any possibility of the diversion of public funds from the legitimate purpose of creating such an efficient service, to individual or corporate gain.

In the distressful conditions brought about by the depression it would hardly be fair to expect the shipping industry to be an exception to the general rule of drastically reduced income and terrific depreciation of values, and we have no reason to think that the secretary is not fully cognizant of this fact. In connection with arrears in the repayments of construction loans, by companies holding mail contracts, the secretary has stated that it will be the policy of the government in the future to demand that the shipowner keep up current payments of funds received on account of his mail contracts. This seems reasonable. The government will further demand that past due items be amortized over a period of time which in the judgment of the director of the shipping board bureau is fair and equitable to both the govern-

ment and the shipowner. This also seems fair.

A thorough study is promised of all mail contracts as well as all other contracts now in effect. Also a continued study of the differential between American and foreign shipbuilding and operating costs, is to be made. Of course this should be done.

The old saying that a new broom sweeps clean might well be cited in this instance. Hope for the future of our shipping affairs as well as all other activities with which the government is concerned lies rather in the character, the energy and in the intelligence and broad vision of the individuals responsible for conducting the government's affairs. We have every hope that performance will measure up to the intention and the promise. It presents a great opportunity and equal responsibility, and the nation will acclaim a genuine accomplishment, giving order, stability and efficiency to our merchant marine.

Allowing unstinted and unreserved approval of the purpose of the new policies declared, we continue to be utterly opposed to any suggestion that the government, as such, might find it necessary to re-enter direct operation of shipping lines. With the best intentions in the world, and it must be admitted that it has been tried out to the very limit and under conditions far more favorable than now and still found to be a failure, even a superman in the government service, with the freest possible hand, could not so completely change the entire aspect of bureaucratic government as to make it successful or desirable.

To be sure, the secretary refers to government operation, only if necessary for the protection of the government's interest, and in that event that it should be a temporary expedient. We believe that the government's interests can be protected fully without direct operation, and that the secretary and director of shipping will come to this conclusion after a more detailed consideration of the problem.



At left—Miss Elizabeth Jane Hankins, sponsor at the launching of the Delmarva. At right—glass enclosed promenade deck.

DELMARVA,

Enters Service After Successful Trials

By R. D. MacMILLEN

THE twin screw steel ferry-steamer DELMARVA, built by The Pusey & Jones Corp., Wilmington, Del., for the Virginia Ferry Corp., was delivered to her owner at Norfolk on Jan. 5 and made her first regular trip on Jan. 7, leaving Norfolk at 7:30 a.m. for Cape Charles, Va. This 26-mile run is made regularly in 1¾ hours, with three round trips daily at the present time, the schedule to be increased on Feb. 1 to four trips daily.

Delivery was preceded on Jan. 4 by a highly successful trial trip, attended by several hundred guests. The keenest interest was displayed in the many striking and unusual features of design and equipment embodied in the new vessel, which was designed and built by The Pusey & Jones Corp., under the direction of W. R. Elsey, superintendent of floating equipment of the Pennsylvania Railroad Co., with George G. Sharp of New York city, as consulting naval architect. On the trials, over the Deep Water point course on the Delaware river, a speed of 18.22 statute miles per hour at 200 revolutions per minute was maintained, which was well in excess of the anticipated speed.

The DELMARVA is one of the largest ferryboats to have been launched in this country. She is of steel construction throughout, the hull divided into ten watertight compartments; fire-proof bulkheads are provided in the crew's quarters and in all cabin spaces. An article describing this vessel was published in the January issue of MARINE REVIEW and the present

article will be confined mainly to additional information now available.

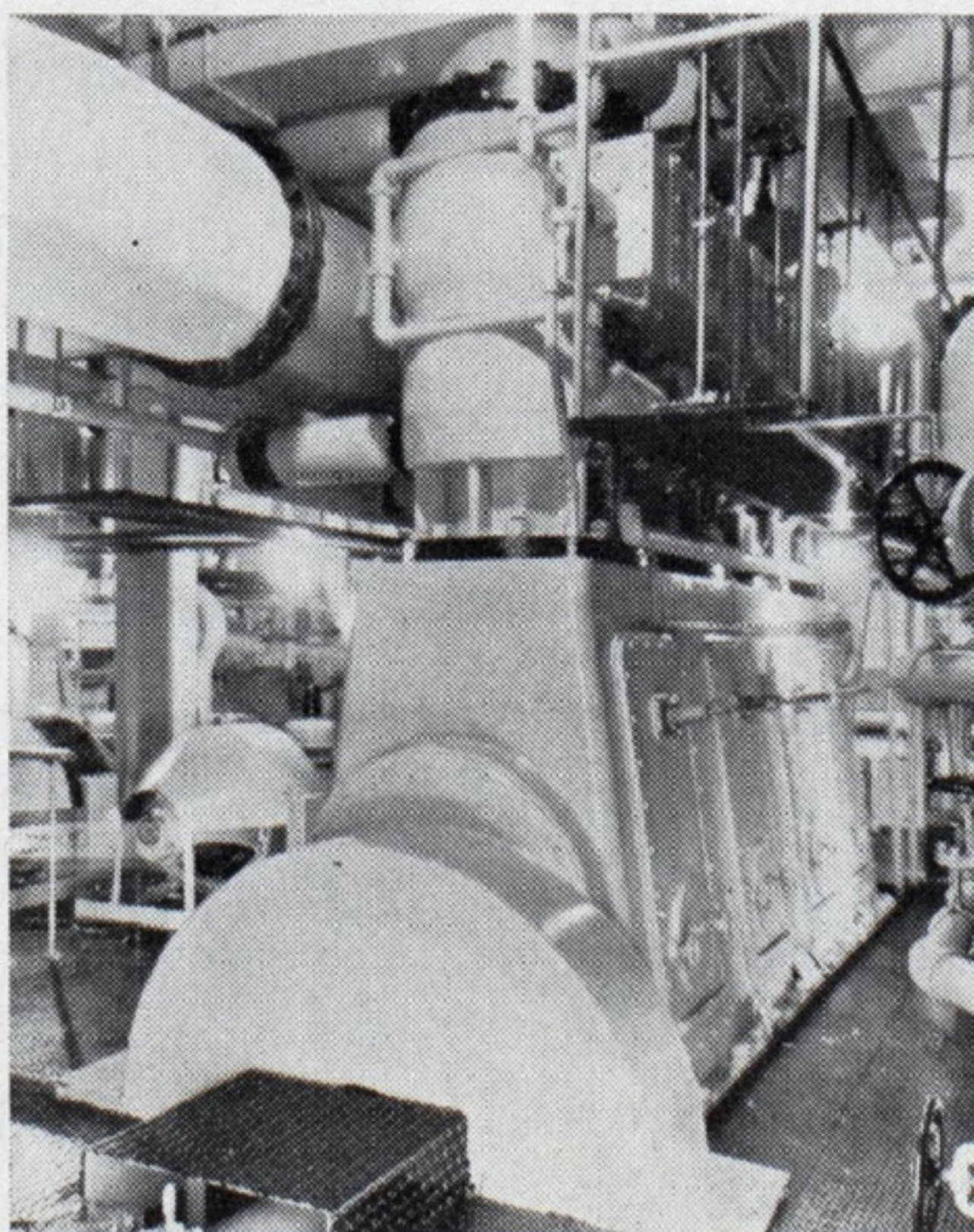
The spacious main deck is given over primarily to accommodation of automobiles. In the six lanes provided, approximately 80 cars of run-of-the-road size may be taken care of, with two lanes directly in the center of the ship for the accommodation of buses and trucks. With the exception of the cargo space aft, which is open for convenient loading and unloading of general cargo, the entire main deck is enclosed by plating extending up to the promenade deck. Loading and unloading provisions forward are pro-

vided through massive double watertight steel doors, hand operated with rack and pinion.

Main Propulsion Machinery

The DELMARVA is equipped with two uniflow type steam engines, built by the Skinner Engine Co., Erie, Pa. Each engine has four cylinders, 19 inches in diameter by 20 inches, stroke, designed to develop 1400 shaft horsepower at 200 revolutions per minute when operating on steam pressure of 275 pounds per square inch and with 200 degrees Fahr. superheat at the throttle, and exhausting into 26 inches of vacuum. The wholly-enclosed engines have force feed lubrication. They are guaranteed for a water rate not to exceed 11 pounds per indicated horsepower per hour and from all present indications their efficiency is well beyond this requirement. They reverse from full speed ahead to astern in only three and one-half seconds. Each of the two propellers which is of bronze is machined true to pitch and statically balanced. The propellers were made by F. Ferguson & Son, Hoboken, N. J.

Steam is generated in two Babcock & Wilcox cross drum, sectional header, water tube marine boilers, each having a total heating surface of 3826 square feet and a total superheating surface of 371 square feet. They are designed for oil burning with a working pressure of 285 pounds at the superheater outlet and superheat of 200 degrees Fahr. though built for a maximum pressure of 322 pounds per



One of the two main propelling, Skinner uniflow, steam reciprocating engines in the Delmarva's engine room

square inch. Each will evaporate 19,000 pounds of water per hour. The fuel oil burning equipment was supplied by Todd Combustion, Inc. Auxiliaries and pumps were referred to in detail in the article on the DELMARVA in the January MARINE REVIEW.

By means of Carrier-Brunswick International units, air conditioning is provided throughout the vessel. Large metal ducts to all enclosed spaces carry fresh cool or heated air in such volume that a complete change of air is accomplished each minute.

Those marine men who had opportunity to carefully study the DELMARVA in detail have found many high spots of interest to indicate the care and originality which make the design of this vessel so well fitted to her service requirements.

The hull of the DELMARVA, for example, well repays careful study. From keel to water line, she is a conventional bay steamer. From water line to deck line, her hull flares out to meet the conventional ferryboat deck lines, having the same contour bow and stern. The stern, however, is quite unusual, for it is practically a flattened plane which rides only a few inches below the water line. This design adds materially to the buoyancy of the vessel and is proving effective in preventing "squatting" when the vessel is operating in shallow water.

Another feature below the water line which is noticeable is the fact that the propellers are set quite a bit further outboard than is customary—a feature which is expected to improve maneuvering ability in small harbors and to assist in propeller efficiency.

And one would hardly fail to notice that the hull plates are lapped forward—a precedent, unquestionably, for ferryboats, though it is a practice which has been followed by certain of the newest and largest of the foreign built liners in the belief that speed characteristics are thus improved.

But from the operating man's point of view, the outstanding feature is the ingenious manner in which a boat 59 feet wide has been made to yield six lanes for automobile traffic where-

as on a steamship of conventional design not more than four lanes could be accommodated. The special design by which this desirable increase is brought about places the boilers athwartships; the uptakes then are split so that they occupy only two feet width; they meet in an insulated room

Ferry Steamer Delmarva

General Dimensions and Particulars

Length overall, feet, inches.....	260—0
Beam over guards, feet, inches	59—0
Molded depth amidships, feet, inches.....	19—1
Draft, with 250 tons, feet, inches.....	10—0
Driveways for automobiles	6
Automobile carrying capacity.....	60 to 80
Normal speed, miles per hour.....	18
Fuel oil capacity, gallons.....	15,000
Passenger capacity	400
Keel laid	June 22, 1933
Launched	Nov. 2, 1933
Delivered	Jan. 5, 1934
Placed in service	Jan. 7, 1934

on the promenade deck and thence are carried into a common stack.

Nor is this the only instance of space saving, for there are no stanchions above the main deck, a trunk and girder system being used instead. In fact, the overall height of the ship has been reduced by supporting the promenade deck by girders above deck instead of underneath.

And there are other features which

will not escape notice: The attention which has been given to flooring, for example. The entire main deck is of knobby pattern checkered plates; something new for ferryboats. The promenade deck is finished with Levelite, covered with Tiletex.

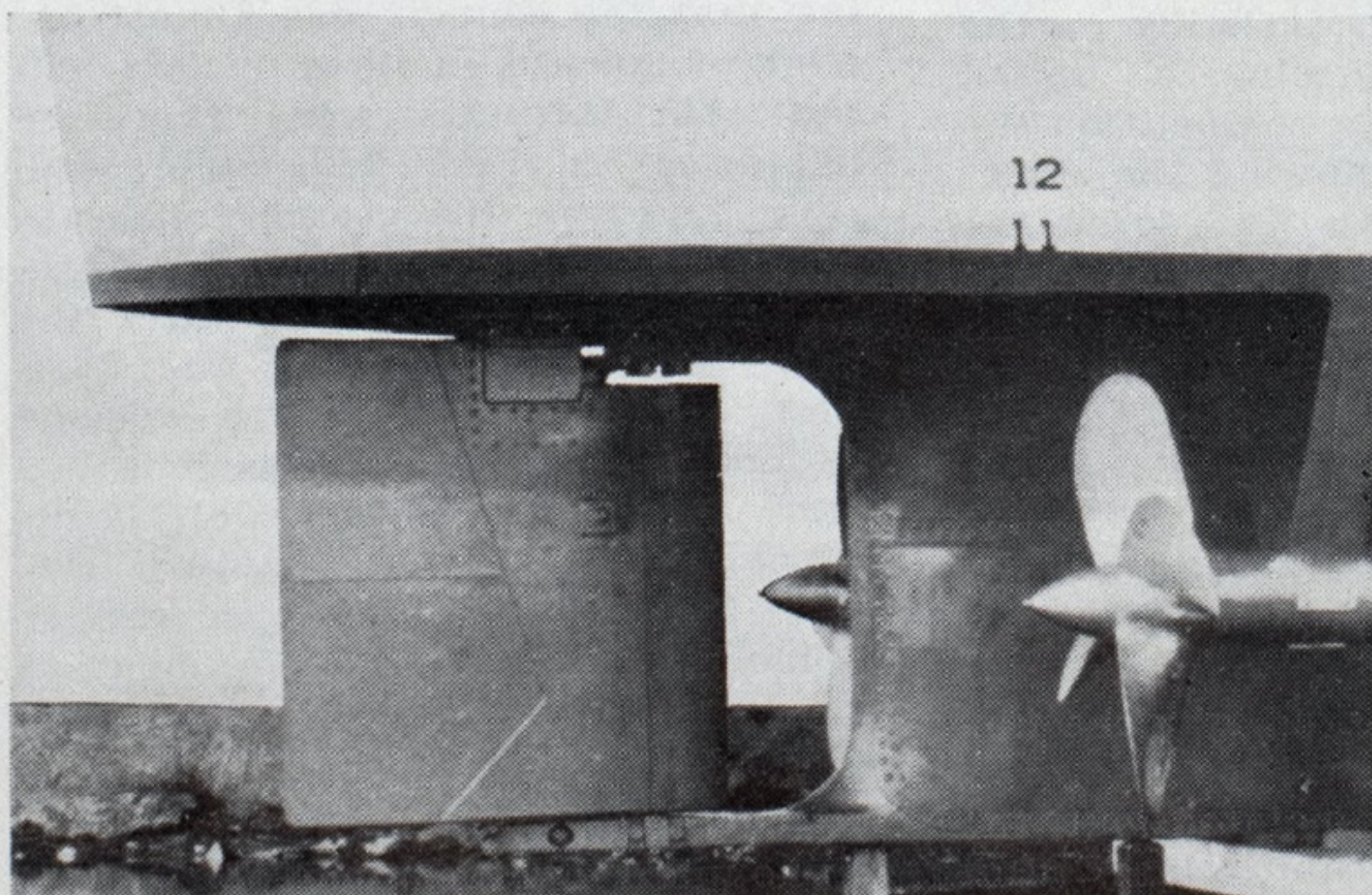
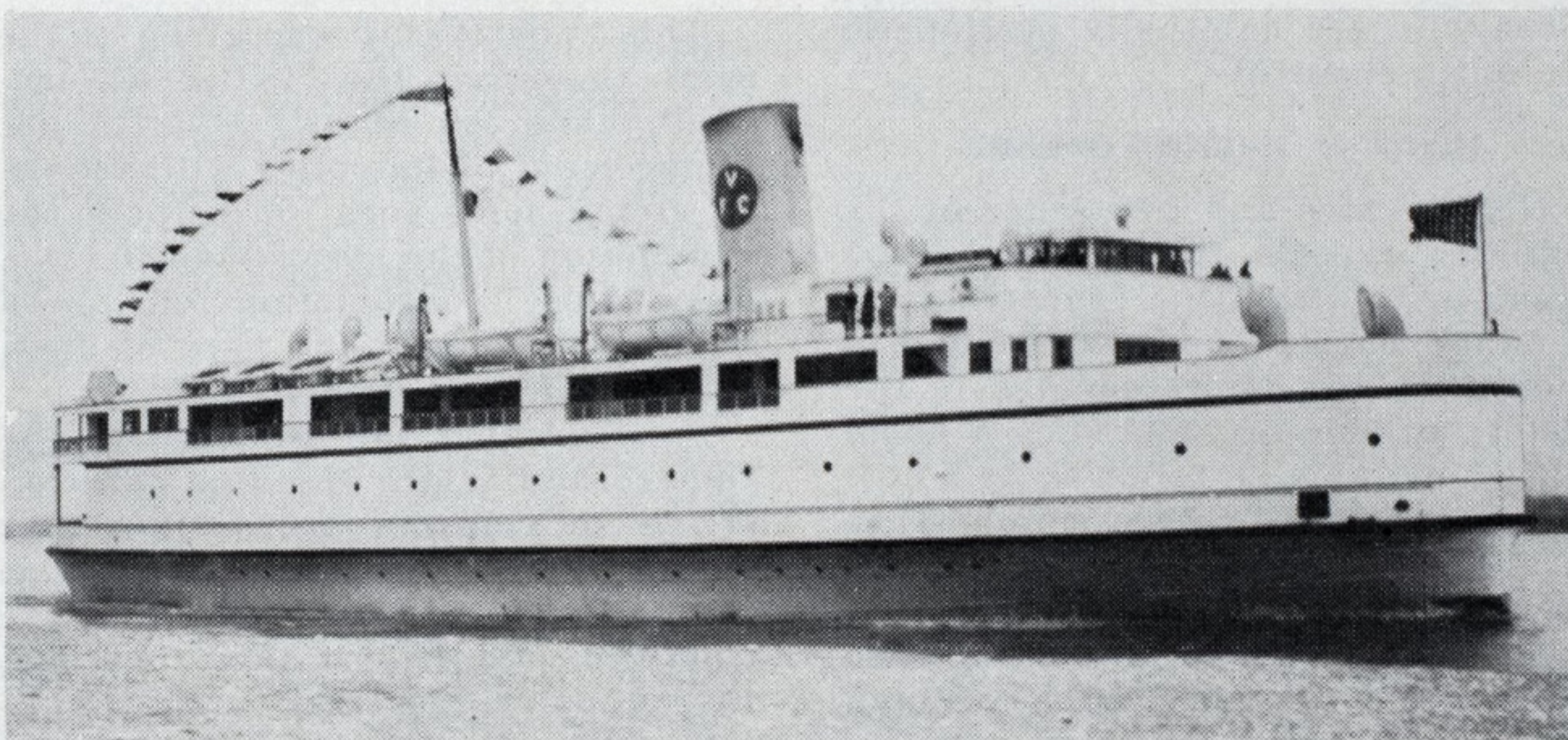
Performance data on the new vessel is not yet available in detail but the Skinner engines are exceeding their guaranteed efficiency and the vessel's speed is well in excess of anticipations.

So, while this is the first Skinner unaflo installation in a salt water vessel, these engines are apparently meeting fully the performance standards set by unaflo jobs installed on the western rivers and, for many years, so highly regarded in the stationary field.

To Build New Orient Liner

Vickers Armstrong Ltd., England, is undertaking the construction of a new liner for service to the Orient. For a large ocean going passenger ship, the new liner will be quite unusual in that it will have only one mast and only one funnel. As a consequence much additional deck space will be available for the use of passengers.

The new vessel will be decorated in the advanced modern style and she is to be somewhat larger than her predecessors; having a length of 665 feet and a somewhat greater



Above — ferry steamer Delmarva on trial trip. At left — stern of the Delmarva of special design. Twin bronze propellers. Simple streamlined rudder

beam. First class passenger accommodations are to be fitted for 475 persons and tourist accommodations, instead of third class, for a total of 675 persons. The new vessel is to be driven by twin screws and geared turbines developing a total of 24,000 horsepower.

Orders received by the General Electric Co. during the year 1933 amounted to \$142,770,791, compared with \$121,725,772 for 1932, an increase of 17 per cent.

Orders for the quarter ending Dec. 31 amounted to \$37,985,790, compared with \$27,351,658 for the last quarter of 1932, an increase of 39 per cent.

European Shipping, 1933 and 1934

Steady Improvement Now Underway

By Frank C. Bowen

EACH industry at the end of every year has to cast up its accounts to check its position. The shipping industry in practically every European country, but especially in Britain, did not do well in the past year. It has been a poor one for every maritime country, but for Britain it has been one of almost uninterrupted gloom until in the very last weeks, when suddenly the prospects changed completely. The year 1934 while it does not promise anything like complete recovery to normal, at least seems likely to be much better than several years past and above all, to offer much more employment to those connected with shipping and its ancillary industries.

It is true that for several years past we have not been without a number of prophets who considered that the shipping industry must certainly have reached rock bottom, and that such darkness could only precede the dawn, although on each occasion the dawn has proved to be a false one. But 1934 is ushered in with definitely better prospects. Even those who are habitually pessimistic are quite cheerful.

Signs of Revival Definite

Nobody with any knowledge of the industry expects the revival to be rapid, or to attain the proportions of a minor boom. The war brought a boom that was unprecedented in the history of shipping and such a boom must inevitably be followed by a still longer and more severe slump. That is the lesson taught by experience ever since trade records have been kept. But this slump has been made even worse by every country doing its best to satisfy its own requirements so that the amount of cargo has declined, while with greater speed at sea the carrying capacity of the world's tonnage has increased. It is doubtful whether these factors will adjust themselves for another ten years or more.

These factors affect the whole shipping world, but in mercantile matters as in disarmament each country naturally looks after its own yard arm. From the British point of view the general ailment is made worse by ultranationalist policy which has prompted countries with little or no economic need for a large shipping industry, to build one up by artificial means and to foster it by subsidies, national flag

discriminations and other means which have hit British shipping, hanging on to the free trade principle as long as possible, particularly hard.

It is this desire to cling to the free trade principle that has caused British shipping men to work as hard as possible for the complete freedom of the seas in peace time. Nobody in his right senses denies the right of any country to aid its own shipping by any means which are in accordance with its pledged word in trade treaties which are still in force. Such state aids as the flag discrimination until recently practised by Portugal are outside that limit and should have been firmly dealt with. But legal aids which are open to our competitors are also open to us, and the government has announced that aid will be afforded to the British shipping industry as soon as the industry itself can agree as to what it really wants and what is best for it.

Aid for Completing Cunarder

This undertaking was given at the same time that the British government made the eagerly awaited announcement of its policy with regard to giving some form of help in the completion of the giant Cunarder No. 534 whose construction has been held up so long at the yard of John Brown & Co. of Clydebank.

Satisfied that the directors of the Cunard and White Star line had contrived to compose their differences sufficiently to run a combined service on the North Atlantic, which was the condition laid down a long time ago, the ministry has now promised to give financial aid to the completion of the liner, and probably for a second ship as well. In insisting on the two companies forming a united front against foreign competition the treasury is only following the example of the Germans, who fused the North German Lloyd and Hamburg American lines and the Italians who insisted on the amalgamation of the Navigazione Generale Italiana and the Lloyd Sabaudo to run the Rex and Conte Di Savoia.

Naturally enough it has been made something of a political matter, although rather half-heartedly, and some critics have asked why the taxpayers' money should be so spent while others have pointed out the popularity of the cabin class. But

generally speaking the move is exceedingly popular among all classes. Experience with the "figure-head" ships, first the Germans and then the Italians, shows that while the number of travellers on the North Atlantic is greatly reduced the crack ships can still run practically filled to capacity. The construction of these two ships would mean much work, not only in the shipbuilding centers themselves but in practically every district in the country, through sub-contracts.

If only the same agreement could be reached with regard to state aid to cargo shipping, both liner and tramp, matters would be simple but the industry has never yet reached such unanimity and it is only its dire need, amounting to a threat of extermination, that will achieve the miracle. "A," an experienced shipowner, wants to see the Imperial and coasting trades reserved to British ships as they were before the repeal of the navigation acts, but "B," equally experienced and with just as much capital at stake, makes his profit out of a foreign coast which would almost certainly be closed to British shipping in retaliation. So it can be taken on right through the alphabet, and of course there is always the age-old struggle between the tramp shipowner and the man who runs cargo liners on regular berth.

Attention to Tramp Shipping

This struggle has in the past led to a good deal of criticism of the chamber of shipping of the United Kingdom, which should be the mouthpiece of the whole business, the contention of the tramp man being that the council was almost entirely composed of liner owners and that his interests were therefore neglected or definitely suppressed. Now, however, the chamber has appointed a strong committee of purely tramping men to look after the interests of that side of the business, and better things are expected in the future, especially as it is certain that some measure of agreement will be reached that will permit the British owner to receive something from the government as an offset to subsidies by states abroad.

What that aid will be has not been announced at the time of writing.

Trend of Trade and Shipping in British Isles

	Sept.	Oct.	Nov.	Eleven months ended Nov. 30,	
				1933	1932
Total entrances of cargo ships into British ports:					
Number of vessels.....	4,444	4,092	3,797	43,793	44,414
Tons.....	5,577,479	5,429,517	4,983,575	55,521,950	54,555,938
Tonnage from Atlantic coast of North America.....	1,129,093 (20.02%)	1,166,933 (21.4%)	931,173 (18.7%)	10,604,531 (19.1%)	10,663,194 (19.6%)
Total clearances from British ports:					
Number of vessels.....	4,392	4,237	4,291	45,331	47,006
Tons.....	5,163,089	4,763,396	4,779,293	51,399,105	50,966,460
Tonnage going to Atlantic coast of North America.....	1,086,115 (21.1%)	885,358 (18.5%)	745,716 (15.6%)	9,517,617 (18.5%)	9,093,569 (17.9%)
Total value of goods:					
Exported.....	£35,630,061	38,702,041	38,054,119	382,096,315	379,421,904
Imported.....	£57,803,924	61,771,053	63,734,338	613,017,716	642,458,291
Exports of coal:					
Tons.....	3,417,734	3,554,926	3,607,094	36,018,444	35,810,180
Value.....	£2,759,614	2,888,787	2,912,278	29,009,462	29,112,057
Tonnage shipped for use of steamers.....	1,099,609	1,173,426	1,169,769	12,304,768	12,922,129

and it is a dangerous subject on which to prophesy. The government has left the matter open, only making it clear that the measure will be limited both in period and amount and that it will be protective in nature—that is a word which sounds so much more pleasant than “retaliatory.”

It is a matter of elimination, for suggestions by the hundred have been published by shipping men for the last year and more, each designed to counter the particular form of aid which he knows best, in other words the form that hits his own business hardest. These range from coastal or imperial reservation to the British flag, as it was before the repeal of the navigation acts in 1849, through a set subsidy for certain specified services that have to compete with foreign ships similarly helped, to a general bounty of so much per ton on cargo ships.

This last is intended as a counter to the Italian subsidy against which British tramps have to fight. This subsidy must by law be renewed every year or allowed to lapse, and it has been duly renewed for 1934 although from all accounts the Italians are rather disappointed in its operation. It has got the business but it has not persuaded Italian owners to lay down new and up-to-date ships as had been hoped; many have gone to the scrappers but have been replaced by second-hand tonnage from various flags.

In a last attempt to rectify mat-

ters the Italian government has offered a large cash prize for the most promising invention of a really revolutionary tramp which will be strikingly economical both in hull and machinery, but up to now nobody has put forward anything which promises to win it. As it always has been from the earliest date, with the exception of a few Scandinavian owners, the only people to build new and up-to-date tramp tonnage are the British.

One of the many objections which the average British shipping man has to subsidies in general is the possibility of a protected merchant service losing its vitality and enterprise and being content to jog along to the limits of the taxpayers' purse instead of carrying the red ensign to the ends of the earth and keeping in the forefront of the industry.

Happily there is no sign of this yet and shipbuilders, engineers and owners, within the limit of their means after such a slump, are doing all that they can to improve the cargo carrier. There is no doubt about the technical improvement effected during the year 1933. The new tramps of the big fleet built by Messrs. J. & C. Harrison, London, have every refinement in engine room and in the after hull lines. Their first cost was admittedly on the high side but they have proved themselves able to accept freights which a ship of ordinary fuel consumption could not touch, and to do quite well on them.

Shortly the first of the “arcform” steamers will be running her trials, the revolutionary idea of Sir Joseph Isherwood who has evolved a hull resembling nothing that has ever yet been put on the water but one that promises an extraordinarily low fuel consumption in addition to carrying rather more and having greater strength on a considerably lighter hull.

Sir Joseph, who is of course as well known in the United States as he is in Britain, has the courage of his own convictions and is not only having three of these novel ships built on speculation in order that shipowners may have a practical demonstration of the truth of the tank experiments, but is offering to work out for shipowners, without cost to them, the figures for the ARCFORM counterpart of any ship that they already possess.

British tramps cannot hope to rival the low running costs of their Mediterranean and Baltic rivals so that the most up-to-date material is the best chance that they have. The trouble is that it is generally rather expensive and in this it is interesting to note that “arcform” ships, the very latest to be considered, are reported to cost £9 per ton.

Those who cannot afford to build new ships even at the present level of shipbuilding prices, which is lower than the yards are likely to be able to quote again for a long time to come, are considering the mod-

(Continued on Page 40)

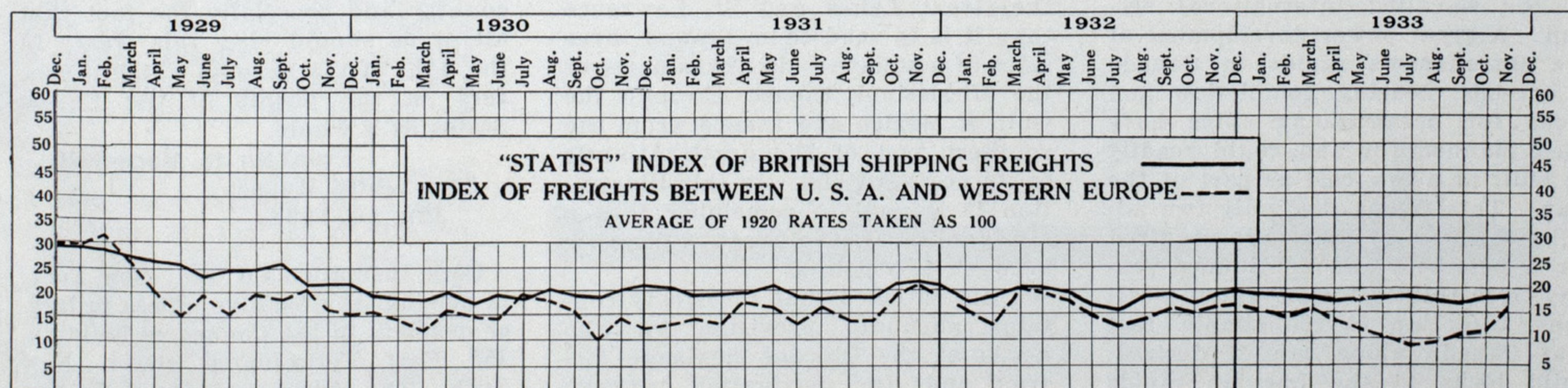


Diagram showing fluctuation of ocean freight rates for four years and eleven months

Approval of Seaway Treaty Urged by Roosevelt

ON NO maritime project of recent years has there been such determined differences of opinion as on the St. Lawrence waterway. On this project the President is in agreement with his predecessors. When he campaigned for the presidency, he came out for ratification of the treaty and both party conventions included ratification in their platforms. It is, however, evident from the President's strong special message to the senate Jan. 10, urging ratification of the treaty that, in addition to the moral compunction of living up to campaign and platform promises, he is thoroughly convinced of the economic value of the seaway. His message to the senate, in full, follows:

I request the consideration of ratification by the senate of the so-called St. Lawrence treaty with Canada. Broad national reasons lead me, without hesitation, to advocate the treaty. There are two main considerations, navigation and power.

Canada and the United States are possessed of a natural flow of water from near the center of the continent to the ocean—a flow which throughout the greater part of its length is today available for navigation by large size vessels. A system of locks at the eastern end of Lake Superior, a dredged channel between Lake Huron and Lake Erie, and another series of great locks between Lake Erie and Lake Ontario provide free and adequate navigation to a point well down the St. Lawrence river. From there, a series of three rapids, all of them within a distance of 120 miles, now impede navigation by ocean going vessels; but a Canadian canal already provides facilities for smaller ships. This Canadian canal now is used substantially up to its capacity.

Believes in Co-operation

Two of the three rapids are wholly in Canadian territory; the other is in the so-called international section. A great power development at the Beauharnois rapids in Canada is already nearing completion and locks for ocean going ships have been planned for and could readily be built at a low cost as part of the plan. This means that only two additional series of locks are required for a complete and continuous seaway from Duluth to salt water. I call your attention to the simple fact that Canada alone can, if desired, build locks at the Lachine rapids and at the international section and

thus provide a seaway wholly within Canadian control without treaty participation by the United States. This, however, would be a reversal of the policy of co-operation which the United States and Canada have continuously maintained for generations.

I want to make it very clear that that great international highway for shipping is without any question going to be completed in the near future and that this completion should be carried out by both nations instead of by one.

I am sending you herewith a summary of data prepared at my request by governmental agencies. This summary, in its relation to the economic aspects of the seaway shows from the broad national point of view, first, that commerce and transportation will be greatly benefited and, second, local fears of economic harm to special localities or to special interests are grossly exaggerated. It is, I believe, a historic fact that every great improvement directed to better commercial communications, whether in the case of railroads into new territory, or the deepening of great rivers, or the building of canals, or even the cutting of the isthmus of Panama, have all been subjected to opposition on the part of local interests which conjure up imaginary fears and fail to realize that improved transportation results in increased commerce benefiting directly or indirectly all sections.

Railroads Will Not Be Harmed

For example, I am convinced that the building of the St. Lawrence seaway will not injure the railroads or throw their employees out of work; that it will not in any way interfere with the proper use of the Mississippi river or the Missouri river for navigation. Let us be wholly frank in saying that it is better economics to send grain or other raw materials from our Northwest to Europe via the Great Lakes and St. Lawrence than it is to send them around three sides of a square—via Texas ports or the Mississippi, thence, through the Gulf of Mexico and thence, from the southern end of the north Atlantic to its northern end. In this illustration it is well to remember that a straight line is the shortest distance between two points.

I am satisfied that the treaty contains adequate provision for the needs of the Chicago drainage district and for navigation between Lake Michigan and the Mississippi

river. A special report from the chief of engineers of the war department covers this subject.

On the affirmative side, I subscribe to the definite belief that the completion of the seaway will greatly serve the economic and transportation needs of a vast area of the United States and should therefore, be considered solely from the national point of view.

The other great objective provided for in the treaty relates to the development of electric power. As you know, I have advocated the development of four great power areas in the United States, each to serve as a yardstick and each to be controlled by government or governmental agencies. The Tennessee Valley plants and projects in the Southeast, the Boulder dam on the Colorado river in the Southwest, the Columbia river projects in the Northwest are already under construction. The St. Lawrence development in the Northwest calls for action. This river is a source of incomparably cheap power located in proximity to a great industrial and rural market and within transmission distance of millions of domestic consumers.

Electric Power Development

The legislature of the state of New York by unanimous vote set up the necessary state machinery during my term as governor of New York and the state stands ready to co-operate with the federal government in the distribution of power in accordance with what I believe is today a definite national policy.

Power in the international section of the St. Lawrence cannot be developed without a treaty between the United States and Canada. On the other hand, Canada can develop a huge block of new power at the two other rapids which lie wholly within Canadian territory. Here again, as in the case of navigation, it is better in every way that we should maintain the historic principle of accord with Canada in the mutual development of the two nations.

I have not stressed the fact that the starting of this great work will put thousands of unemployed to work. I have preferred to stress the great future advantages to our country and especially the fact that all of us should view this treaty in the light of the benefits which it confers on the people of the United States as a whole.

Franklin D. Roosevelt.

The White House,
Jan. 10, 1934.

Cork Insulation Co. Inc., New York, is moving its executive offices to larger quarters in the Commerce building, 155 East Forty-fourth street, New York. The change is being made due to a greatly increased demand.

Record in Service of a Diesel Tanker

During Nineteen Months of Operation

ACTUAL performance in service, by general agreement, is one of the most practical ways to determine the true quality and efficiency of any machinery. The single screw ocean going, diesel engined tanker, *MERCURY SUN*, built by the Sun Shipbuilding & Dry Dock Co., Chester, Pa., delivered to her owner the Motor Tankship Corp., Dec. 17, 1931, entered service on March 5, 1932, and completed 14 round voyages on her arrival at Baltimore Oct. 14, 1933. During this period she logged 131,318 nautical miles and carried 185,483 tons of cargo, also during this period she was at sea 520 days, and in port 68 days, 21 hours. Her average speed at sea, bar to bar, was 11.52 knots, and her average daily bunker fuel oil consumption was 12.32 tons, all purposes; while her average daily lubricating oil consumption was 13.89 gallons, all purposes.

M. S. Mercury Sun

Summary of Log

From March 5, 1932, to Oct. 14, 1933

Number of round trips	14
Time at sea, days, hours	519—23.9
Time in port, days, hours	68—21.1
Total distance, nautical miles.....	131,318
Revolutions per minute, average	79.9
Speed, av., bar to bar, knots.....	11.52
Fuel consumption of main engine, per day, in bbls., 80; in tons.....	11.82
Fuel consumption of auxiliary, per day, in bbls., 3.32; in tons	0.49
Fuel consumption of boiler, at sea, per day, in bbls., 4.17; in tons.....	0.62
Fuel consumption of boiler, in port per day, in bbls., 55.0; in tons.....	8.13
Lub. oil (cylinder) per day, gals.....	6.26
Lub. oil (engine) per day, gals.....	6.20
Lub. oil (auxiliary) per day, gals.....	1.43
Total cargo carried (bbls.)	1,615,558
Total cargo carried (tons)	185,483

All voyages of the *MERCURY SUN*, the results of which are tabulated above, were from the Delaware river district (Chester, Marcus Hook, Pa) or Chesapeake bay, (Baltimore), through the Panama canal, to San Pedro, Calif., and return, except one, which was to Houston, Tex., and return to Bayway, N. J.

Going west the vessel was in ballast. Coming east her cargo was gasoline. The specific gravity of the gasoline cargo was taken at .7313, making 366.5 gallons per ton and 8.71 barrels per ton.

At the end of trip No. 6 the vessel was sent into drydock for 4 days, and 2 hours. At the end of trip No. 11, the vessel again went into drydock, this time for 2 days and 7½ hours. The interval between drydocking was 7 months and 7 days.

General particulars of the *MERCURY SUN* are: Length overall, 497 feet, 10 inches; length between perpendicu-

lars, 480 feet, 6 inches; breadth molded 65 feet, 9 inches; depth molded, 37 feet; draft, 29 feet; displacement loaded, 20,437 long tons; deadweight, 14,791 tons; gross tonnage, 9085; net tonnage; 5563. Her cargo capacity is 120,116 barrels, and her bunker fuel capacity is 650 tons. Her designed rate of speed in loaded condition is 11 knots.

The propelling power is one Sun-Doxford, opposed piston, oil engine, built by the Sun Shipbuilding & Dry Dock Co., Chester, Pa., and is a four-cylinder engine of two cycle type with attached scavenging pump. Cylinder diameter is 23.62 inches, and the combined stroke is 91.32 inches. Brake horsepower at the shaft is 2800 at 80 revolutions per minute.

For auxiliary use there is one marine watertube type Foster Wheeler boiler of 4000 square feet heating surface; fitted for burning oil. Two four-cylinder, 120 horsepower, Cooper-Besemer diesel engines, each drive a 75-kilowatt General Electric generator. The auxiliaries are electrically driven.

The rated fuel consumption of this vessel while at sea is 12.3 tons, and at dock, 7.95 tons per day. Fuel consumption per brake horsepower per hour of the main engine is 0.37 pound, and the same for equivalent indicated horsepower is 0.32 pound per hour.

Taking up the details of one of the 14 voyages, the results of which are summarized in the above table, we find: The *MERCURY SUN* left San Pedro, Calif., March 29, 1932 at 6:30 p.m., with 13,404 tons of gasoline cargo and 395 tons of bunker fuel, drawing 28 feet, 2 inches forward, and 28 feet, 5 inches, aft, an average draft of 28 feet, 3½ inches, with a corresponding displacement in salt water of 19,803 tons. She arrived at Marcus Hook, Pa., April 18, 1932 at 7:55 a.m.

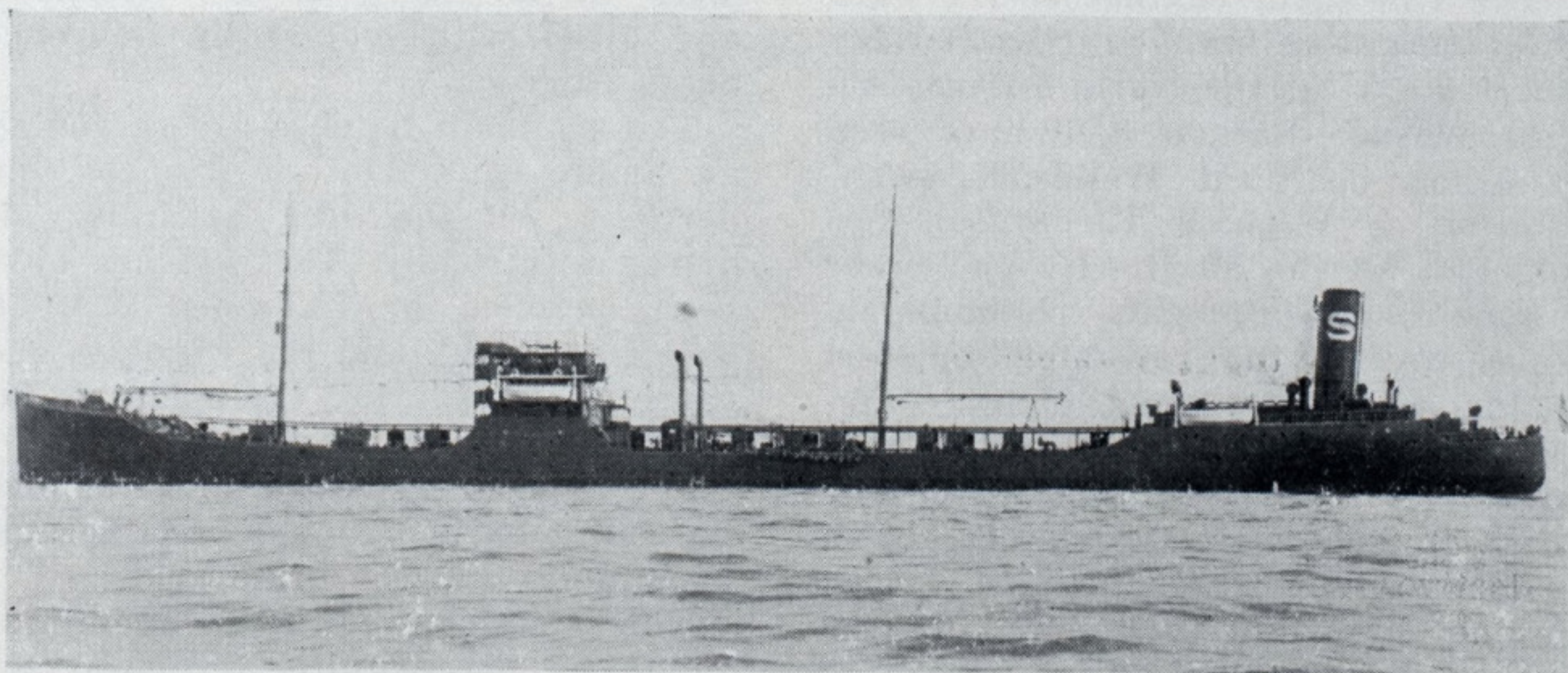
drawing 28 feet, 4 inches forward, and 29 feet, 2 inches aft, an average draft of 28 feet, 9 inches, with a corresponding displacement in fresh water of 19,603 tons.

Analyzing the results of this voyage it is found that her average speed at sea was 11.4 knots. Weather conditions were fair with light winds and occasional choppy seas. The diesel fuel consumption was 10.0 tons per day, all purposes, and the lubricating oil consumption was 15.25 gallons per day, all purposes.

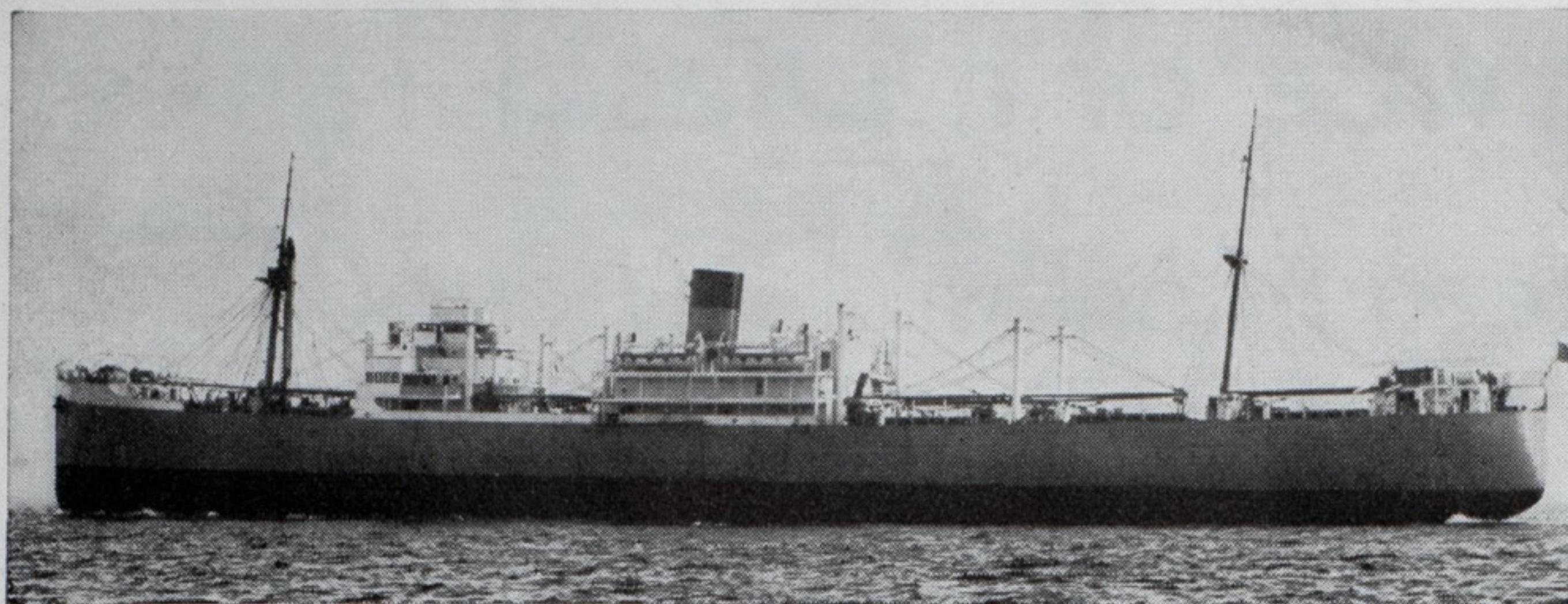
On this voyage there were no stops or delays for any purposes.

The Motorship *MERCURY SUN* carries a personnel of 36 men, all told. In the deck department the number and ratings are: Capt. R. L. Montague, three mates, one boatswain, three quartermasters, five able seamen, three ordinary seamen. In the engine room there are: Chief Engineer R. Vandergracht, three assistant engineers, two pump men, three oilers, three utility men and one machinist. The chief steward, two cooks and three mess boys make up the steward department. There is also one radio operator.

The fine performance of the *MERCURY SUN* during a period of over 19 months is due to that combination of elements which make for successful operation. These elements are: Well trained efficient personnel aboard ship; dependable and economical machinery and a staunch well found vessel throughout; and a careful and efficient supervision by the management. The *MERCURY SUN* could not have made her good record lacking any one of these essential factors, and much credit is due to the officers and men for the skillful performance of their duties.



Tanker Brilliant, similar to the Mercury Sun, described in this article, except in minor details



Twin Screw Motorship Port Chalmers—Built by Swan, Hunter & Wigham Richardson Ltd. for service between England and Australia, New Zealand

Twin Screw British Motorship Recently Completed

SWAN, HUNTER, & WIGHAM RICHARDSON LTD., Wallsend-on-Tyne England has just added another fine twin-screw motorship the PORT CHALMERS to the fleet of The Commonwealth & Dominion Line, London for its service between Great Britain, Australia and New Zealand. In previous years several other ships of this line have been built at the Wallsend shipyard, and they are called after various ports in the Antipodes such as PORT HOBART, PORT ALMA, PORT HUON, PORT GISBORNE, and PORT FAIRY.

The PORT CHALMERS has been built under the supervision of H. G. Dearden the owner's marine superintendent, and on the Dec. 28 ran a successful trial trip at sea off the mouth of the river Tyne. Shortly thereafter she sailed on her maiden voyage to the Antipodes. She is built to Lloyd's highest class and to board of trade requirements. Her leading dimensions are a length between perpendiculars of 486½ feet and a breadth of 64 feet 3 inches, her deadweight carrying capacities being 11,610 tons. She has a straight stem and cruiser stern.

Main Propelling Machinery

The two main engines of the PORT CHALMERS have been built by Barclay Curle & Co., at the North British Engine Works, Glasgow, and have been fitted on board at Wallsend, Swan, Hunter, & Wigham Richardson has supplied all the auxiliaries and other engine room equipment. The main engines are of the reversible opposed piston, two-stroke cycle, airless injection, Barclay Curle-Doxford type, each driving a scavenging pump from the main engine. The two engines give a collective horsepower of 8500. Each engine has four cylinders of 25.2 inches in diameter with a stroke of 97.6 inches.

Oil fuel is carried in the double bot-

tom and in tanks on each side of the engine room and at tunnel sides.

Swan, Hunter, & Wigham Richardson is well known as a pioneer in electric welding and in the PORT CHALMERS electric welding has taken the place of riveting in the oil fuel bunkers, in the main transverse watertight bulkheads and in all deckhouse and steel divisional bulkheads, in the main generator seats, seating for various auxiliary machinery, for all the water service tanks, the skylights, masts derrick posts and pillars.

The cargo space is divided into six holds below the second deck. The first five holds and the lower tween decks are insulated for the carriage of refrigerated cargo. There are also insulated storerooms for carrying cheese and other perishable foods.

Electric and Auxiliary Machinery

There are three electric generators run by diesel oil engines supplied by W. H. Allen Sons & Co., Bedford. They supply power to the winches, capstans, windlass, steering gear and all auxiliary machinery as well as for lighting the ship throughout.

The steering gear is of the electric hydraulic Hele-Shaw-Martineau type made by J. Hastie & Co., Greenock and fitted with motors by Laurence Scott, Norwich.

The six main hatches are served by an ample equipment of winches and derricks. All the deck machinery is driven electrically. The winches have been supplied by Laurence Scott & Telemotors Ltd. and the windlass and capstans by Clarke, Chapman & Co. Gateshead.

J. & E. Hall, Dartford have supplied the latest carbon dioxide refrigerated machinery, and the brine grids.

The Commonwealth & Dominion Line has successfully developed the trade of carrying chilled beef which will be maintained by the PORT CHAL-

MERS. It has been found that the introduction of CO₂ gas into the holds enables chilled beef to be carried for a longer time.

In the tween decks fruit will be carried and the necessary ventilation is secured by powerful rotary fans.

Living Accommodation

Amidships is a steel deckhouse containing most commodious and comfortable accommodation for twelve passengers in four single and four double-berth staterooms which are handsomely panelled and furnished. All of them have hot and cold fresh water supplied to the wash-basins.

The dining room is a specially beautiful apartment panelled in French walnut with cream colored frieze. The smoke room is panelled in black bean wood and the upholstery is of green leather.

The senior officers' accommodation is arranged in the saloon deckhouse. The captain's rooms are in a steel house above the bridge deck and consist of a spacious sitting room en suite with a bedroom and bathroom.

The engineers and junior officers have their quarters in deckhouses along the machinery casing on the bridge deck. The greasers and donkeyman have their quarters on the upper deck aft and the firemen in a house in the forecastle.

World Trade to Expand

Improvement in foreign trade of the United States during the year 1933 is significant because it means an improvement in the face of the most extraordinary difficulties that foreign trade has had to meet in a number of years. There is little doubt that 1934 will be a continuance of this improvement, according to Harry Tipper, executive vice president of the American Manufacturers Export association.

He believes that this improvement would be quite rapid and very substantial if some of the worst difficulties could be cleared away. The removal of these difficulties, however, cannot be accomplished by the individual business concern. Exchange control, politically managed loans, tariffs, quotas and embargoes by governmental decree are not the sort of thing that can be solved by individual action. More and more in the last two or three years the control of foreign trade in other nations has been passing into the hands of the government through exchange operations, financing and operation of tariffs, quotas and embargoes.

Consequently the future of America's foreign trade will be greatly influenced by the sound co-operation of those interested in foreign trade, so that this part of our economic operation can be developed for its maximum income and its material effect upon employment in the United States.

SAFETY,

How Practical Results Are Being Achieved

By R. R. HOWARD

AT LEAST three important practical results have been accomplished by the national safety program which has been carried on for a number of years in the marine industry.

First: An increasing number of marine executives are coming to realize—as demonstrated by many examples—that a large percentage of the common “accidents” of the industry are definitely controllable; and that it is an important function of management to bring the hazards which cause such accidents under control, in the interest of the well being of their workers, and to lessen the compensation and other costs from such accidents.

Second: Definite progress is being made in the marine industry in the investigation of accident causes, for the purpose of developing safe practices methods and safety codes toward the elimination of these accident causes.

Third: There is being developed for the marine industry a statistical background of accident experience, which is making possible a comparison of the accident experience of this industry with the accident experience of many other industries; and which is making it possible for an individual company to compare its own accident record with the accident records of other like companies in the same size group engaged in like branches of marine operations.

Interest in Accident Control

Proof of the interest of marine executives in accident control is indicated by the increasing activities of special groups in marine safety work. The primary national group, of course, is the marine section of the National Safety council, organized more than seventeen years ago in Milwaukee, with gradually increasing attendance and active interest. The present executive committee of the section includes nearly 40 men prominent in the industry in the United States, co-operating in a continuous nation-wide program which includes many important activities.

It is interesting to know that the members of this co-operating group who live in New York city or within a near radius, hold regular monthly meetings throughout the year, and like periodic meetings are held by other like groups at different points

along the Pacific coast. The climax of these local meetings are several annual marine safety conferences.

At the last greater New York safety conference, held in April, 1933, there was an attendance of 130 marine company representatives at the marine safety meetings, a considerable percentage of these coming from Philadelphia, Boston, New Orleans, and other eastern ports. These sessions specialized in the problem of working out a safety organization plan for the groups of stevedores of the eastern coast. This was supplemented by the organization of a specific accident prevention program for the port of New York, representatives of all stevedoring interests co-operating in a plan for a joint series of monthly safety meetings.

Pacific Coast Safety Work

Quite remarkable have been the accomplishments of like groups of marine safety workers on the Pacific coast. The first step toward a general marine safety organization on the West coast came in 1926, through a joint meeting of all San Francisco marine employers. The committee enlisted the support of the Pacific American Steamship association, the Shipowners association of the Pacific coast, and the Waterfront Employers' union of San Francisco. About seventy companies operating more than 300 ships were soon included in the membership. At the present time a continuous campaign of safety education is being carried on among 10,000 seamen and nearly 5000 longshoremen on the Pacific coast. Comparing the accident injury experience of 1928 with the calendar year 1932, there has been a reduction of 45 per cent in disabling injuries among these workers. Practically every enrolled fleet has reported a decided improvement in accident experience. Among longshoremen disabling injuries have decreased 24 per cent in the San Francisco region, 27 per cent in Los Angeles and 41 per cent in the Columbia river district. This has included a remarkable reduction in fatalities. At the time of a recent report, there had not been a fatality on the docks of the state of California for three years.

One of the activities of the West coast group has been the preparation of a new code for terminal or dock operations on the Pacific coast, pub-

lished and distributed among the workers. This dock code is said to be the first of the sort in marine history. The accident prevention activities carried on in Los Angeles harbor, in San Francisco, in the Columbia river, and in Puget sound include the following phases:

Accident Prevention Activities

1: Inspection of gear, working places, methods of operation and habits of men.

2: Investigations, analyses, and reports of accidents.

3: Development of minimum standards for methods, gear, habits and working conditions.

4: Education or selling of safety to executives and workmen through (a) safety letter; (b) first aid courses; (c) posters; (d) dinner and other group meetings; (e) company and group safety meetings; (f) personal contact; (g) articles in trade journals.

5: Public relations contacts (workmen's organizations; state industrial accident commissions; federal agencies interested in safety and compensation, etc.)

6: Co-operation with National Safety council and other national and state safety forums.

7: Reducing cost of injuries through work with claim agents and insurance carriers; recommendation of plans for insurance, medical and hospital services.

8: Recommendations on proposed legislation affecting compensation for injuries and state and federal codes.

9: Administration of department; development of policies; meeting with safety committees.

“On the whole,” stated Henry Blackstone, safety engineer of the United States P. & I. Agency, Inc., who spoke on this subject before the marine section of the last annual safety congress, “Pacific coast accident prevention has been accepted as part of the job and just as important a part as any other branch of operation, not something ethereal or visionary, but an essential entity worthy of the attention of the highest executives in the company.”

Investigating Causes of Accidents

Under the direction of the engineering committee of the marine section of the National Safety council, there has been constant activity in investigating the causes of marine accidents.

The old view was that "accidents are bound to happen." The new view is that accidents are caused, and when these causes are removed or improved, accidents will likewise be brought under control.

As the result of their own investigation conducted in their own way and for the purpose of promoting their own work, the posters and slides committee of the marine section, some years ago, adopted a schedule of subjects for accident prevention posters, based on the assumption of the following chief "accident causes":

1. Falls of persons
2. By moving equipment
3. Falling objects or equipment
4. Flying objects or equipment
5. Handling objects (except hand tools)
6. Hand tools
7. Stepping in or on objects or equipment
8. Running into or striking against objects or equipment not handled
9. Fires, gases or corrosive substances
10. Miscellaneous

The chief activity of the engineering committee, co-operating with the staff experts of the National Safety council, has been the preparation of safe practices pamphlets. Each pamphlet is devoted to a special group of hazards, and suggestions for the control of these hazards are assembled from every possible source. These pamphlets before publication are submitted to numerous experts; thus they have achieved considerable authority in the industry and have had influence toward the development of official state or federal safety codes.

The three first safe practices pamphlets to be issued were "*Hazards in Fumigating Ships*," "*Safe Operation of Marine Boilers*," "*Safe Practices in Handling Bunker Coal*." Additional pamphlets in the course of preparation are "*Safe Practices in Handling Gasoline and Fuel and Cargo in Motor Boats*," "*Safe Practices in Handling Bunker Fuel Oils*." A considerable variety of other pamphlets are listed for preparation.

Co-operating With Others

These pamphlets are supplemented by a variety of other pamphlets published by the National Safety council in co-operation with other like industrial sections. Some of these general pamphlets are: "*Ladders*"; "*Stairs and Stairways*"; "*Knots, Bends, Hitches and Slings*"; "*Oiling Devices and Oilers*"; "*Floors and Flooring*"; "*Fire Extinguisher Equipment*"; "*Manilla and Wire Rope*"; "*Hoisting Apparatus*"; "*Fuel Handling, Storing and Firing*"; "*Investigation of Accidents*"; "*Mechanical Refrigeration*"; "*Safety Inspections*"; "*Training for Safety*."

The program for the development

of national statistical data as the basis for accident control has been carried on consistently since the organization of the marine section. Through this period of years, those who have been carrying on the accident prevention program of the marine industry have been urging the executives heads of marine organizations to join with them in assembling annual accident statistics worthy of the industry. The number of reporting units has been increasing from year to year, but still the response is not as general as for many other national industries. However, there has been a substantial gain during the past few years and the accident experience of the industry is becoming more representative and of considerable comparative value.

It is planned, in order that the marine company units which report their annual accident experience may compare this experience with like units under similar operating hazards, that these reports be carefully classified. For instance, the 66 marine units which reported their 1932 accident experience were classified into the five groups of harbor equipment, shipbuilding and repairs, tankers, stevedoring, and liners. In each of these groups, where there were enough entries, the reporting units were further classified as either large or small. The entrants are designated by code numbers known only to the reporting company and to the tabulating department of the National Safety council, though the companies which make the best records in each group are urged to reveal their identity and they usually do.

More Complete Records Needed

The items which are required in the standardized accident experience report are kept quite simplified, though they do reveal enough of detail to give value when an executive compares the experience of his company with other like companies. It has been the plan of the statistical division of the National Safety council during the past few years to so tabulate this data, that the record of individual companies which continue to report each year are segregated, which gives opportunity for a reliable study of the safety progress of identical companies.

It has been urged that the companies which report their accident experience should give more information, to afford opportunity for more effective accident control planning. For example, one of the speakers at the recent annual safety congress recommended that the essential data required for a complete understanding of each accident injury should include the following: Location—plant, department or operations; name of person injured; date and time of accident; occupation of person involved; description of the accident;

what unsafe act was committed; why was it committed; what unsafe condition existed; and what remedial action was taken or suggested to bring about permanent remedy.

To stimulate marine company executives to assemble accident injury data of value to them, a nationwide marine safety contest was organized two years ago. Interest is proved by the fact that the contest for the first six months of 1933 had twice as many entrants as in the 1932 contest; and it is generally believed at the time of this writing that there will be a like increase for the third annual contest for the first six months of 1934. In the 1933 contest there were 54 marine units entered, representing 36,571 employees who worked a total of 40,322,462 man hours. Nine of these units completed the contest with perfect safety records.

A Competition in Safety

As an example of the spirit which is stimulated by such a contest, the manager of the safety department of a large steamship company and a group of affiliated companies reported that one of his units, though small in number of workers, had worked 10,000 man hours without an injury. "Our largest unit," he continues, "reduced its accident frequency 44 per cent below its record for the last half of 1932, and three other major units show a reduction of 30 per cent, 27 per cent, and 9 per cent, respectively, for this period."

Many other examples could be cited to indicate that, as the result of national marine safety activities, there has developed: (1) an increased national consciousness of the marine safety problem; (2) a substantial body of information regarding the causes of marine accidents and practical control method; (3) and a growing realization of the value of a national statistical basis for the control of marine accidents.

Award to be Conferred

The Pittsburgh section of the American Chemical Society has selected Ralph E. Hall, Ph. D., director, Hall Laboratories, Inc., Pittsburgh, as the recipient of the 1933 (the first) Pittsburgh award.

This honor, which will be conferred on Dr. Hall at the sectional meeting on Feb. 15, has come to him in recognition of his distinguished service to chemistry and humanity, particularly his contributions to the fundamental knowledge of boiler water reactions and their applications to the practical solution of boiler water problems, his discoveries and technical accomplishments in the beneficiation and conditioning of water for industrial and domestic use, and his developments in the production of chemicals for these purposes.

Appointed Director of the Shipping Board Bureau

ON JAN. 10 an announcement was made in Washington, that Daniel C. Roper, secretary of commerce had appointed Henry H. Heimann director of the shipping board bureau of the department of commerce. Mr. Heimann hails from Niles, Mich., and has gained prominence for his work as executive manager of the National Association of Credit Men.

The action of Secretary Roper, in naming Mr. Heimann as director and thus establishing the shipping board bureau on a permanent basis, follows a long study of the functions of the bureau, in relation to the merchant marine, in which Mr. Heimann had taken an important part as chairman of the sub-committee of the business advisory and planning council of the department.

Since the transfer of the bureau to the commerce department, the post of director has been vacant until Mr. Heimann's appointment. In the meantime, Rear Admiral H. I. Cone U.S.N. (retired), who had been chairman of the United States shipping board, has been exercising supervisory functions, in his capacity as head of the advisory committee to the secretary of commerce. It is understood that Admiral Cone will continue his work with the committee.

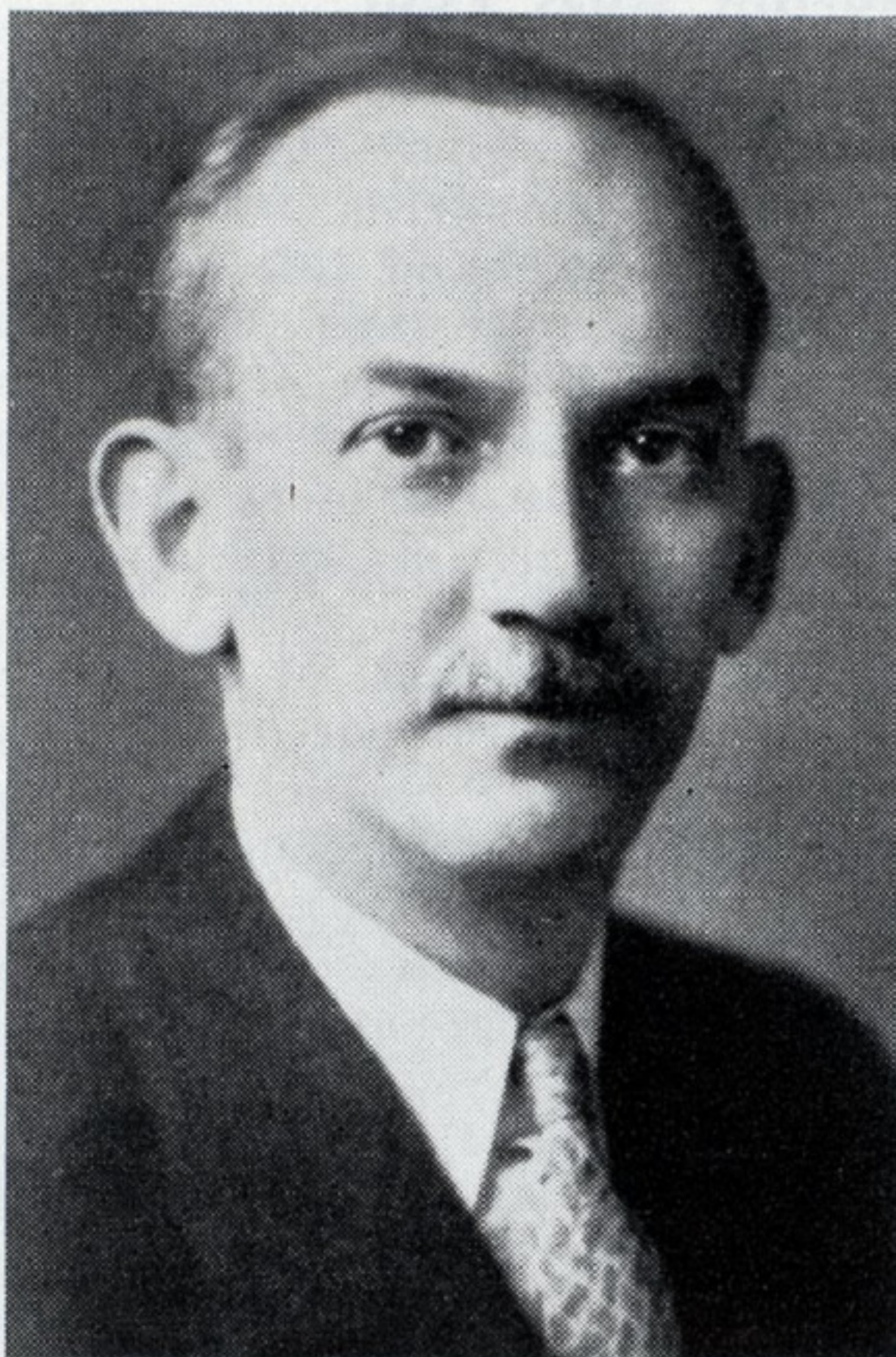
The statement issued in connection with Mr. Heimann's appointment follows:

"Under the provision of the act of March 20, 1933, entitled, 'an act to maintain the credit of the United States government,' the President issued an executive order on June 10, 1933, under which the United States shipping board was abolished and its functions, including those over and in respect to the Merchant Fleet Corp., were transferred to the department of commerce.

"Since the transfer of the shipping board to the department of commerce, careful studies, under the direction and supervision of the secretary of commerce, have been made of shipping board and merchant marine problems by two committees. These two committees are: The advisory committee to the secretary of commerce on shipping board and merchant marine, composed of Admiral H. I. Cone, General Charles McK. Saltzman and Thomas Woodward; and the subcommittee on the shipping board bureau of the business advisory and planning council, of which subcommittee Mr. Heimann has been chairman.

"In line with these studies, the sec-

retary of commerce announced Jan. 10 that these services are being organized as a regular bureau of the department and that Mr. Heimann had been appointed director of the shipping board bureau. The departmental advisory committee, comprising Admiral Cone, Charles McK. Saltzman and Thomas Woodward, will continue in an advisory capacity to the secretary and to the director of the shipping board bureau. The shipping board bureau has not been assigned to an assistant secretary and will not be so assigned until its organization is more completely worked out. Until such time, the director of the bureau will



Henry H. Heimann
Director, Shipping Board Bureau

report directly to the secretary of commerce.

"The major fiscal and credit problems facing the shipping board bureau have led the secretary of commerce to draft Mr. Heimann from his present position as executive manager of the National Association of Credit Men, the outstanding credit organization in the United States. Mr. Heimann assumes his new duties by and with the consent of the board of directors of the association."

The new director was born Sept. 26, 1891 at Aviston, Ill. He studied at St. Mary's college, St. Mary's Kans., and at St. Louis university, where, after studying business administration, accounting and economics for two years, he entered the law college and was graduated with the degree of LL. B. He was admitted to the bar in

1913. For several years prior to his selection as chief of the nation's wholesale and industrial credit men he was engaged in work in connection with commercial credit and finance.

Strong for Private Operation

That Secretary Roper is emphatically for a strong merchant marine, privately operated, is evident from his statement that the new administration wishes, "to encourage people who can operate ships to do so," and "I do not know of any more important problem in the world today than transportation. The question of loans for construction is a very fundamental part of our study. The matter of credits is a very important part of this administration for the shipping interests."

From this it may be inferred that vigorous action on merchant marine problems will be taken without waiting for the report of the senatorial investigation into the mail subsidies. The secretary's statement continues:

"I think it is highly important that a very definite shipping policy should be worked out as soon as possible for building up the merchant marine in a way that will permit as much initiative as possible on the part of those who are going to engage in that industry. Our tendency is away from government operation and to encourage people who can operate ships to do so."

The director of the shipping board bureau will report directly to the secretary of commerce. In this connection the secretary said:

"We regarded it as so important and there are so many questions of policy to be worked out and determined, that until we get further along in the reorganization I feel I should assume as much responsibility and supervision as possible."

I. M. M. to Give Up Agency

P. A. S. Franklin, president of the International Mercantile Marine Co., announced Jan. 23, that effective June 30, 1934, the International Mercantile Marine Co. will cease to act as general agent for the White Star line in the United States and Canada.

It will be recalled that in 1926 the International Mercantile Marine Co. sold the White Star line to British interests, and that since that time the company has been steadily disposing of its foreign tonnage. Only recently the company sold the great majority of its Leyland line steamers, and is proceeding to dispose of the few remaining foreign ships in accordance with its policy to divest itself of all foreign flag services and devote all its resources and the full strength of its experienced organization, with offices in all the important cities of the United States, to the development of American flag services.

Basic Code for Shipping Ready for Hearings

A proposed master code for the shipping industry, which is the result of months of study and many conferences has been submitted to the national recovery administration by the American Steamship Owners' association, said to represent over 50 per cent of American flag tonnage engaged in deep water foreign and domestic commerce of the United States. This final draft of a proposed code represents a modification of the two previous drafts, the first of which was presented on Sept. 26 last year.

It has been the purpose of Deputy Administrator W. H. Davis, who is in charge of shipping codes, to develop a single basic code for the entire shipping industry. Each branch of the industry is at liberty to submit a divisional code covering the peculiar characteristics of its particular business. The basic code specifically provides for such divisional codes to supplement the general proposals of the master code. These codes will include carriers, both American and foreign, engaged in domestic or offshore trade, inland waters, Great Lakes, bays, harbors, sounds, etc., in the United States.

Several proposed divisional codes have already been submitted by various groups included among which are the intercoastal lines, the Great Lakes, and certain sections of the area covered by inland waterway operators. The oil tanker operators are working on a divisional code and except for certain provisions with reference to laying up of superfluous tonnage are in agreement. It is expected that the points in dispute will be settled shortly.

Before considering the divisional codes Deputy Administrator Davis wishes to settle on an approved general code. In this connection a notice was issued by the national recovery administration on Jan. 16 that public hearings on the proposed basic shipping code, originally convened Nov. 9 last, will be reconvened in Washington on Jan. 31. Since this announcement it is understood that the public hearing may begin a day earlier.

Final action on the master shipping code will probably not be long delayed after completion of the public hearing. Following adoption of this basic code, the divisional codes will be considered with the view of coming to an agreement so that approval may be given as promptly as possible.

Welded Barge Construction

Building two 60-foot barges of welded construction in two weeks using 40 men is believed to be a speed record for barge construction.

The two barges, which are 60 feet

long, 30 feet wide, and 6 feet deep, were built by The Kane Boiler Works, Galveston, Tex., for the United Dredging Co., New York. All welding was done by the shielded arc process with electrodes and machines supplied by Lincoln Electric Co., Cleveland.

The Equitable Equipment Co. Inc., New Orleans, recently completed six of an order for 27 all-welded steel barges to be used in the transportation of bananas in shallow waters. The barges are for shipment to Central America. They have a length of 60 feet and a width of 20 feet and the hulls and decks are fabricated of one-eighth inch steel plates. The total depth of each barge is 3 feet and the draft, in light condition, is 6 inches. General Electric Co. welding equipment and electrodes were used in the construction of these barges.

Commerce at Los Angeles During Last year

Although the year 1933 was the low point in volume of commerce through Los Angeles harbor in a decade, the value of this commerce in 1933 was more than that for the year 1932. The value of commerce for the last half of the year was nearly \$100,000,000 more than the value for the first six months of the year.

The total tonnage of commerce moving through the port in 1933 aggregated 16,629,000 tons according to preliminary figures, compared with 17,715,470 tons in 1932. The value of the water commerce in the year just closed was \$774,418,000 compared with \$742,868,365 in 1932.

Exports to other countries amounted to 3,416,000 tons, or approximately a half million tons under those of 1932. Value of exports, however, decreased only \$7,000,000 or about 11 per cent, the total amounting to \$53,137,000. Imports were slightly more than those of a year ago, amounting to 466,000 tons in volume and \$25,850,000 in value.

Showing the improved conditions over those of a year ago, the water commerce of the month of December amounted to \$70,071,000 in value compared with \$51,223,232 in December, 1932, and the increase was in nearly all lines of trade, foreign trade amounting to more than \$8,000,000 in the month of December compared with approximately \$6,000,000 in December of 1932, and domestic trade showing still greater increases.

Lumber receipts for the year 1933 amounted to 453,000,000 feet compared with 367,000,000 feet in 1932.

Oil shipments in 1933 aggregated 68,148,000 barrels compared with 74,781,000 barrels in 1932.

The Italian Line Leads in Atlantic Passengers

Italy moved into first place for transatlantic passenger traffic during the year 1933. In addition to winning the blue ribbon of the Atlantic with the REX, the Italian line carried a total of 79,931 passengers east and west, with 113 sailings.

The Italian Line's nearest competitor carried 77,242 passengers with 152 sailings, or 2689 less passengers with 39 more sailings. The next four largest transatlantic lines carried respectively, 65,859 passengers with 25 sailings, 55,175 passengers with 176 sailings, 41,384 passengers with 113 sailings and 36,658 passengers with 95 sailings.

In the average number of passengers per sailing the Italian Line was from 39 to 126 per cent ahead of all other lines. The Italian Line carried an average of 707 passengers per sailing, the next five lines carrying averages of 508, 321, 313, 366 and 385 passengers per sailing.

The largest number of passengers on single sailings both west and east bound also were carried by ships of the Italian Line with the CONTE DI SAVOIA taking 1751 passengers east-bound in July and return westbound with 1733 passengers in September. The REX ran a close second with 1718 westbound in October.

Passengers East and Westbound

January 1 to December 31, 1933			
	Passenger	Sailings	Average
Italian line.....	79,931	113	707
North German Lloyd	77,242	152	508
Cunard Line	65,859	205	321
I. M. M.	55,175	176	313
French Line	41,384	113	366
United States Lines..	36,658	95	385

David E. Skinner Dies

David E. Skinner, who gained fame during the war for his successful efforts in shipbuilding, died at Seattle, on Dec. 27 at the age of 66. At the time of his death he was president of the Skinner & Eddy Corp.

With John W. Eddy he organized the Skinner & Eddy Shipbuilding Co., Seattle, in 1916. During and shortly after the war this yard built over \$100,000,000 of steel ships in record time for the government.

Sometime after the war the company discontinued shipbuilding and Mr. Skinner became prominent in the industrial and civic affairs of Seattle.

He was born in Hillsdale, Mich., and attended college in Ashland, N. C. He entered the employ of a salt merchant in Bay City, Mich., and in 1897 he became associated with John W. Eddy. The record performance of the Skinner and Eddy shipyards during the war was the launching of an 8800-ton vessel 55 days after the keel had been laid.

Designing Welded Structures For High Joint Efficiency

BY EVERETT CHAPMAN

Lukenweld Inc.

Part II

CORRECTION of the destructive factors which are present in nonhomogeneous welded joints simply revolves around two elements: First, drafting room practice; and second, heat treatment. As it is concerned with the design of the joints, drafting room practice must be supervised carefully to insure that none of the defects or defects of types shown in the examples presented in the preceding installment of this article are allowed to creep into the structure.

Design practice can no more afford to neglect the stress distribution in the joint than it can afford to neglect the stress distribution throughout the gross body of the structure. In fact, the problem is more acute in the case of the joints, simply because of the fact that the variables

CORRECT drafting room practice and heat treatment are of major importance in designing welded rolled steel structures for high efficiency of joints. These factors are discussed in detail in the accompanying article, the second and concluding portion of a noteworthy paper on welded joints presented at the fifty-fourth annual meeting of the American Society of Mechanical Engineers in New York, Dec. 5-7. Part I, appearing in the January MARINE REVIEW, considered joint failures and their causes as explained by photoelastic studies. The author is vice president in charge of engineering, Lukenweld Inc., division of Lukens Steel Co., Coatesville, Pa.

entering into the production of a joint are less standardized than

those which enter into the manufacture of the steel plate.

The effect of a notch in breaking brittle material under a single load is only too well known in the case of the age-old method of breaking glass. The equivalent effect in a ductile material is not marked when the load is applied only once, but the exact effect is duplicated when the load is of a repeated nature. It is astonishing that, in view of this fact, notches as a species do not seem to be generally recognized. It is only a notch in a particular form which has caused trouble that receives any recognition.

It is well-known that prick punch marks and scriber marks and stamped initials must not be applied to locomotive or airplane components. Just why the identical phenomena, in the shape of undercuts and unwelded boundaries and triangular weld contours, are blissfully incorporated in high-duty welded structures is difficult to explain. It is the reason, however, why welded steel structures have failed.

Correction of damage to parent metal necessitates a heat treatment after the structure has been welded. The accompanying series of photomicrographs illustrates the effect of welding, stress-relief, and treatment at the two critical temperatures, of two pieces of steel of different carbon contents. The specimens were etched with nital and the photo-



Series of photomicrographs of 0.24 and 0.40 per cent carbon steel plates 2 inches thick in the as rolled, as welded and heat treated conditions. Welding affects the structure of the parent metal adversely and makes stress relieving necessary to refine the grains and restore ductility

graphs made at approximately 100 diameters.

The first pair of photomicrographs, at the extreme left, represents the as-rolled condition of 2-inch plates. All the other photomicrographs were taken on the very edge of the weld metal and illustrate the effects which occur in the parent metal. In the as-welded condition, it is seen that the parent metal in the case of 0.40 carbon steel is in a martensitic condition, while the 0.24 carbon steel shows evidence of the original austenite with troostite forming at the grain boundaries. It is to be noted also that the grain has been enlarged considerably.

The probable characteristics of these two zones are extreme brittleness, no ductility, and a general weakened condition due to the large grains. With such characteristics, these zones cannot absorb any energy, as they would be called upon to do in the case of an impact, and furthermore, they have no self-relieving properties under thermal stresses because of their lack of ductility.

Breaks Down Hard Constituents

The effects of the usual stress-relieving treatment at 1200 degrees Fahr., followed by a furnace cool, are illustrated in the center pair of two photomicrographs. Treatment at 1200 degrees Fahr. usually is considered sufficient for stress-relief, since at this temperature, ordinary low carbon steels have a yield of only about 2000 pounds per square inch. This means, of course, that any residual stress greater than 2000 pounds per square inch will produce plastic deformation, and therefore will vanish for all practical purposes. The preloading which was introduced by the contracting weld metal has been removed. The temperature of 1200 degrees Fahr., however, if held for a proper length of time, will serve to break down the harder micro-constituents which are formed in the damaged zones. It will not refine the grain, however, since the carbon does not go back into solution at this temperature.

It is also to be noted in the center pair of photomicrographs delineating the 1200-degree Fahr. treatment that the martensitic and troostitic phases in the two steels have been broken down to what is probably a finely divided sorbite and it is reasonable to suppose that the residual stresses after this treatment are under 2000 pounds per square inch. Experience indicates that welded structures which have received this treatment will retain their shape during machining and indefinitely thereafter.

Treatment at 1350 degrees Fahr. partially refines the grain, while the treatment at 1650 degrees, followed by cooling in still air, represents the maximum degree of refinement that

can be obtained. This ideal, in which the pearlite and ferrite are in the finest possible condition, is hardly practical since most welded structures could not be removed from the furnace at this temperature without incurring a severe distortion. In fact, furnace cooling from 1650 degrees is rarely practical since lightweight, high-duty structures may suffer severe distortion in the furnace due to their own weight.

The practical compromise which represents the best commercial practice, therefore, is a soaking treatment for 1 hour per inch of maximum thickness at 1200 degrees Fahr., followed by a slow furnace cooling. Under more rigorous service conditions a gain can be effected practically by raising the temperature to 1400 degrees, at which temperature the grain undergoes partial refinement.

The importance of keeping the carbon content of the steel in the lower ranges is represented graphically in the series of photomicrographs. The local damage done to the higher carbon materials more than offsets the higher average properties which they represent. The magnitude of the brittle phases which are present is a function which increases rapidly as the air-hardening ability of the steel is increased. In the case of the carbon steels, this is, of course, a function of the carbon content. It is through specifications of carbon content that the welding of large structures, such as bridges and ships, which cannot be annealed in a furnace, will become practical.

Peening a Possibility

However, even where metallurgical damage has been minimized in this manner, the problem of stress relief is not solved. As more is known of the nature of residual stresses, mechanical peening will offer a compromise solution which will enable the full possibilities of welded construction to be realized by the designer. The carefully executed ideal, in which contours have received proper attention and which has been properly heat treated, need have a lower factor of safety than any other type of construction; it is more predictable. High degree of predictability goes hand in hand with low factor of safety. As the service duties increase and more and more is demanded of the available structural materials, the factor of safety must be reduced.

Modern transportation trends are imposing high duties on available structural materials. Careful design and selection of materials are the only paths to uniform-stress, one-piece structures. In such structures, the joint as an entity must vanish. The behavior of a properly-made welded point under any kind of load

or load cycle cannot be distinguished from the characteristics of a single piece of rolled steel.

Launch Lighthouse Tender

The lighthouse tender HEMLOCK was launched at the Berg Shipbuilding Co., Seattle, in the latter part of January. The vessel was approximately 75 per cent complete at time of launching, and delivery is expected within three months. She was designed for service in the waters of Alaska and will replace the old wooden tender FERN. Completely equipped, the HEMLOCK will cost approximately \$240,000.

Watertube marine boilers furnish steam to two reciprocating engines of a total horsepower of 1000. Each engine is directly connected to a propeller. The boilers burn fuel oil and the working pressure is 215 pounds per square inch.

Special equipment for the HEMLOCK will include a fathometer for automatic sounding, a gyro-compass, and special deep sea anchoring equipment. She will be completed this spring.

Boston Traffic Increases

Heavy increase in imports during 1933 in comparison with 1932 at Boston is reflected in the customhouse figures, according to Frank S. Davis, manager of the Maritime association of that port. During 1933 imports at Boston were valued at \$90,350,000, contrasted with \$67,377,500 for the year 1932, a gain in valuation of \$22,972,500. Large imports of wool were responsible for part of this increase, and the volume of foreign liquor, following repeal of prohibition, also helped to swell the total.

Recent improvement in shipping in San Francisco has been so marked that there have been a number of instances where vessels were fully loaded and forced to leave behind a part of the cargo offered. This is a condition that has not prevailed for several years.

Change in Name Announced

The Paper & Textile Machinery Co., Sandusky, O., has announced that effective Jan. 3 the company will re-adopt the name under which it began business in 1904; that is, Sandusky Foundry & Machine Co.

This change is made because it is felt that the original name more accurately suggests the nature of the company's products and facilities. This company is a pioneer in the manufacture of centrifugally cast products, and is well known in the marine trade for its shaft sleeves and stern bushings. There is no change in ownership or management.

World Shipbuilding Continues Slight Upward Trend

INDICATIONS of improvement are shown in some sections of the world's shipbuilding industry, according to a statement issued by Lloyd's Register of Shipping, for the quarter ended Dec. 31 last.

Of the ten leading shipbuilding countries of the world, only Great Britain and Ireland, Japan and Spain report gains during the last quarter. Japan's tonnage in hand shows an increase of about 25 per cent, while Great Britain and Ireland, and Spain, each show an advance of approximately 10 per cent. For the United States during the past quarter there was a decrease of about 10 per cent.

How the volume of tonnage in hand has compared in the last two quarters is shown in the following table, the figures representing gross tons of merchant vessels being built:

	Dec. 31, 1933	Sept. 30, 1933
Great Britain & Ireland.....	331,541	303,762
United States	12,373	14,654
Other countries	413,363	438,336
World total	757,277	756,752

At the end of 1932 the world was building 765,720 gross tons of merchant shipping, of which 29.5 per cent was being constructed in Great Britain and Ireland, 7.7 per cent in the United States, and the remaining 62.8 in the other countries, taken together. At the end of 1933, of the total of 757,277 gross tons in hand, 43.8 per cent was building in Great Britain and Ireland, 1.6 per cent in the United States and 54.6 per cent in other countries.

The figures cover the construction of all merchant vessels of 100 gross tons and upwards, each, now being built throughout the world, except in Russia, and of these, 557,032 tons, are being built under the supervision of Lloyd's Register

The comparison between new work and launchings in the last two quarters is shown in the following table of gross tonnage:

New York		
	Dec. 31, 1933	Sept. 30, 1933
Great Britain & Ireland.....	74,581	38,802
Other countries	66,840	67,817
World total	141,421	106,619
Launchings		
Great Britain & Ireland.....	65,174	41,433
Other countries	105,769	88,548
World total	170,943	129,981

A further decrease in the construction of tankers was shown during the quarter ended Dec. 31 last. For steam and motor vessels of this type, each of 1000 gross tons and upwards, there was a decline of about 30,000 tons from the total at the end of September last. Japan, however, doubled the

total of its tonnage of this type under way. The following table of gross tonnage, covering the last two quarters shows the volume of tanker construction.

	Dec. 31, 1933	Sept. 30, 1933
Sweden	41,100	47,600
Great Britain & Ireland.....	31,026	31,026
Japan	19,200	9,600
Spain	18,212	18,212
Other countries	8,070	42,626
World total	117,608	149,064

By far the greater part of the tanker tonnage under way is composed of motor vessels, these representing 99,848 gross tons of the 117,608 ton total.

Fifty-five per cent of all types of merchant vessels now building are motorships. During the quarter just ended the construction of vessels equipped with internal combustion engines show some gain, in contrast with a loss in the previous quarter, and the volume of motorship tonnage under way is greater than it was a year ago, while that of other types of vessels is less. Work in hand during the last two quarters is shown in the following gross tonnage table:

	Dec. 31, 1933	Sept. 30, 1933
Motor vessels	418,254	414,095
Other types	339,023	342,675
Total	757,277	756,752

For Great Britain and Ireland an increase of 25,000 gross tons in motorship construction is shown during the quarter ended Dec. 31 last, while for the other countries combined there was a decline of about 20,000 tons in this type of building. As a result, 33 per cent of all tonnage now building in Great Britain and Ireland is to be motorized, as compared with 28 per cent at the end of September, and only 9 per cent a year ago. For the other countries, taken as a group, the proportion of motor vessels to other tonnage remains at 72 per cent, as in September; and compares with 69 per cent at the end of 1932. Comparison of the production during the quarter ending Dec. 31 last is shown in the following table, the figures representing gross tons:

	Great Britain & Ireland	Other Countries
Motor Vessels	112,276	305,978
Other types	219,265	119,758
Total	331,541	425,736

While Great Britain and Ireland are producing the greatest volume of motor tonnage of any country, Japan made a marked advance during the last quarter, and is now nearing the 100,000 ton mark. The following table shows the relative volume of motor-

ship building in the various countries during the last two quarters, in gross tonnage:

	Dec. 31, 1933	Sept. 30, 1933
Great Britain & Ireland.....	112,276	87,294
Japan	95,660	77,470
Sweden	63,100	69,900
Holland	40,105	40,427
Spain	28,952	28,052
Denmark	21,997	26,150
Germany	21,510	28,500
France	14,576	19,758
Italy	11,200	27,076
United States	503	653

There was a considerable advance during the December quarter in the aggregate power of oil engines in hand, and a lesser gain for steam turbines, while a decline was reported for steam reciprocating engines.

The returns for oil engines from all countries show that the aggregate indicated horsepower of those in hand at the end of December was 621,216, as compared with 494,192 at the end of September. The total for Great Britain and Ireland in this period advanced from 72,939 to 108,101. Japan's figure rose from 83,990 to 123,510; Holland's from 96,885 to 119,725, and Germany's from 70,072 to 80,465. Sweden showed a gain from 55,470 to 61,045; Denmark, from 27,350 to 34,200, and the United States from 5726 to 7210.

For steam turbines, the total shaft horsepower, for all countries, advanced from 423,073 to 466,082. Practically all the gain was accounted for by Great Britain and Ireland, whose figure rose from 229,470 to 257,755; the aggregate for France and for the United States remaining at 172,000 and 6300, respectively.

The total indicated horsepower of reciprocating engines in hand in all countries showed a decline during the last quarter, going from 98,883 to 85,873. For Great Britain and Ireland there was a decrease, from 74,698 to 72,623.

While Great Britain and Ireland continue to lead all shipbuilding countries in the production of tonnage, Japan, during the quarter ended Dec. 31 displaced France as the runner-up, the latter taking third place, which was held by Japan during the September quarter.

Comparisons of the tonnage under way during the last two quarters are given in the following table:

	Dec. 31, 1933	Sept. 30, 1933
Great Britain & Ireland.....	331,541	303,762
Japan	106,760	85,570
France	90,656	95,838
Sweden	64,640	71,440
Holland	40,540	40,862
Spain	35,724	31,924
Denmark	24,663	31,970
Germany	22,510	30,300
Italy	11,200	27,076
United States	12,373	14,654

No increase is reported in the construction of large vessels, of the 20,000 gross tons and upwards class. Only two of these are underway and, as in the September quarter, they are being built, one by Great Britain and Ireland, and the other by France.

Retires From French Line After Long Service

Oscar R. Cauchois, advisory director of the French line in America, after more than 58 years of continuous service with this company, and considered the dean of the shipping business in New York, retired from active duty on Jan. 31.

He is one of the most colorful and dynamic personalities in the group of older shipping men in New York. His voluntary retirement comes at the age of 78. Though the rules of the company call for compulsory retirement at the age of 60, so valuable has the line considered his knowledge and experience, that for each of the past 18 years the board of directors has passed a special resolution, often over his objections, continuing his services. This year, however, he insisted, when the board wanted to take the same action, on retiring from active service, and he was consequently voted the title of honorary manager which is the first such honorary title granted in the 75 years of the company's existence.

It is pleasant to note in this instance, that the copy book maxims on the importance of faithfulness in service is in fact so fully appreciated in practical life. The French line has paid every honor to this old employee for all he has done for the company and for France in the lifetime he has devoted to its service.

He was born in New York City Oct. 2, 1855 of American parents of French descent, his paternal grandfather hailing from Caux, Normandy. After a public school education, and at the age of 20, he commenced his business career as junior freight clerk with the Compagnie Generale Transatlantique then located at 55 Broadway. By close application and interest in his work, he acquired an intimate knowledge of all the various departments of the company. Recognition from his superiors followed and in due course he was made general manager of freight service for the United States and Canada. He was next appointed as assistant agent and in 1921 he was given the highly important position of advisory director.

When Mr. Cauchois joined the French line in 1875 it had only semi-monthly sailings from New York to Havre. In the intervening time the number of sailings has more than doubled. In addition to semi-monthly freight sailings to Vigo, Bordeaux and Havre, freight services were established from France to Philadelphia, Baltimore and Gulf ports, and a freight and passenger service from France to New Orleans and Houston, Canadian ports were covered by a monthly service from France to Halifax, Quebec and Montreal; discontinued during the war.

Ten years ago an important freight

service was inaugurated between France and the Pacific coast of the United States, via the Panama canal, and this traffic has so developed that it is now being maintained by five modern, 10,000-ton steamers. In all of these developments Mr. Cauchois has played a most important part.

During the war he maintained close relations with the French government and directed the transport of war material from Atlantic, Pacific, Gulf and Canadian ports on steamers of the French lines as well as its more than 100 chartered vessels and those requisitioned and chartered by the French government. In certain years during the war the sailings from United States ports exceeded 300 steamers, all under his management and direction.

He has been repeatedly honored by the French government for his



Oscar R. Cauchois

services in promoting maritime traffic between France and United States. He is a commander of the legion of honor, and has also been decorated by the Belgium and the Moroccan governments.

Mr. Cauchois is a member of the New York Chamber of Commerce, the Produce and Maritime exchanges and numerous clubs. In recent years he has taken his annual vacations in Morocco, Algiers and Tunisia where he finds life both interesting and restful.

In view of the services he has rendered the French line over such a long period of activity, it is small wonder that he should be held in such high esteem. He has long been a combination of rudder, driving shaft, stabilizer and compass and now that he has at last decided to retire from the cares and worries of active work he takes with him the deep appreciation of the French line and the personal satisfaction that comes from a good job well done.

Negotiation Underway for Sale of Munson Line

On Jan. 3 Frank C. Munson, president of the Munson Steamship Line issued a statement to the effect that holders of a substantial majority of the company's common stock had entered into an agreement with the International Mercantile Marine Co. by which that company will, upon the consummation of a plan of re-adjustment of the Munson Steamship lines, capital structure and floating debt, own a large majority of the common stocks of the Munson line. In addition the International Mercantile Marine Co. has entered into an agreement with the Munson line whereby, upon consummation of the plan, the International Mercantile Marine Co. will furnish a substantial amount of additional working capital to the Munson line and will thereafter manage and operate its properties.

Under the plan of reorganization proposed, now waiting approval of government officials because of the government's equity in the South American vessels and the mail contract held by the Munson line, the International Mercantile Marine-Roosevelt Co. will manage all Munson line property with the assistance of Frank C. Munson and his brother Carlos W. Munson, chairman of the board, and other officials and members of the staff of the Munson line.

It is expected that the International Mercantile Marine headquarters at 1 Broadway and its terminals at Pier 59, 60, and 61 Hudson river, will be used for Munson line operations under the new arrangement.

New York-South American Service

Included in the Munson line's fleet are the four liners, AMERICAN LEGION, SOUTHERN CROSS, PAN AMERICAN and WESTERN WORLD, operating in the New York to East coast of South America service. These liners were purchased from the shipping board some years ago and a substantial mail contract was awarded the line at the same time.

Other vessels of the Munson Line's fleet, which totals 29 vessels of about 145,000 gross tons, are: MUNARGO, WALTER D. MUNSON, MUNDELTA, MUNINDIES, MUNAIRES, MUNALBRO, MUNDIXIE, MUNARDEN, MUNBEAVER, MUNDOLPHIN, MUNERIC, MUNISLA, MUNLOYAL, MUNWHYSTLE, MUNCOVE, MUNORLEANS, MUNSOMO, MUNPLACE, MUNMOTOR, MUNLISTO, MUNMYSTIC, JUCARGO, MUNTROPIC, FRITZOE, and RAJAH.

The Munson line is one of the oldest and best known of American steamship companies and was founded as a sailing ship service between Cuba and the United States by Walter D. Munson, father of Carlos W. and Frank C. Munson. It is prin-

(Continued on Page 31)

Government Shipping Policies Under the New Deal

THE secretary of commerce, Daniel C. Roper, on Jan. 23 announced the new policies of the shipping board bureau under the new deal. Acting upon recommendations of the director of the shipping board bureau, Henry H. Heimann, the secretary said there would be a general revision of credit policies with a view to adjusting the real needs of the shipping industry to the necessity of protecting public funds. The secretary stated that since the enactment of the construction loan legislation, a total of \$145,000,000 has been loaned by the government to mail and non-mail contract operators. Of this amount, \$126,000,000 is still outstanding. Of the \$126,000,000 due the government, there is approximately \$40,000,000 in total representing balances outstanding from companies which are in arrears, including amounts presently in arrears.

In view of the importance of this fiscal problem before the bureau, no new construction loans will be made as a general policy for a period of sixty to ninety days.

Will Expand Regulatory Duties

The director of the bureau, Mr. Heimann, at the request of the secretary of commerce, is continuing his study of all features of the service. The regulatory division of the bureau will be expanded, while certain duplications of work in other sections of the bureau will be coordinated with existing agencies in other bureaus of the department of commerce.

Commenting on the regulatory powers delegated by law to the former shipping board, the director of the bureau stated that this section of the shipping act, if fully developed, can be of tremendous help as a stabilizing influence in the shipping industry. This is a service of vital importance.

A thorough study of the mail contracts, as well as all other contracts now in effect with the bureau, is to be made. There is also to be a continuing study of the differential between American and foreign shipbuilding and operating costs which is of basic importance in any consideration of a government subsidy policy.

To Study Loans in Arrears

With respect to loans now in arrears, the director of the bureau will conduct conferences with all obligors to the government, with a view to finding out the situation with respect to the fulfillment of overdue obligations and with regard to better management and greater economies. In

instances where the obligors to the government have utterly failed to live up to their contractual relations, it will be insisted that these situations be corrected, otherwise the cancellation of contracts may be recommended.

There will be initiated a policy of requiring greater financial responsibility on the part of those seeking government aid before the execution of future contracts.

The director of the bureau emphasized the fact that while under the law the government seeks to equalize differentials through contract payments, these sections of the law should not, and will not, be interpreted as indicating that the government is expected to provide capital funds which normally should be forthcoming from private management.

There is an excess of tonnage in the industry now, and the government desires to adhere to a policy that will stabilize rather than disturb the industry. We must be fair and just to the shipping industry and to the government.

The director of the bureau, referring to its fiscal affairs, stated that while annual payments to the government on account of both capital return for construction loans and interest in many instances total only fractional parts of the annual payments issued by the government to the ship owner, nevertheless these fractional payments have not, in many cases, been made. This, in turn, caused the government to establish joint accounts, designed to give the government reasonable control of the disposition of government funds paid to the ship-operator. The policy in the future will be such as to demand that the ship-owner keep up current payments out of the joint accounts and amortize past due items over such a period of time as in the judgment of the bureau director is fair and equitable to both the government and the ship owner.

Government Operation if Necessary

Both the secretary and the director of the bureau emphasized the fact that these policies are, of course, subject to the will of congress. In keeping with existing legislation, it will be the policy of the shipping board bureau to relinquish gradually operation of the ships either directly or indirectly when and if this can be accomplished with equity to the government. However, should it be necessary for the protection of the government's interest to temporarily get further into the ship operating business in the pursuance

of a policy of protecting government obligations, such action will be taken, though in that event it should be a temporary expedient.

The secretary indicated that future policy of the department of commerce with regard to the shipping industry will be governed by the principle of developing the American merchant marine—as shall be provided for by congress—along sound lines and in a manner consistent with the public interest. The industry's legitimate needs, he stated, would be given every consideration.

Propeller Club Meeting

The New York Propeller club on Jan. 18 held a luncheon meeting, at the Downtown Athletic club, New York, which was addressed by Malcolm M. Stewart, chairman, Middle West Foreign Trade committee.

At the conclusion of Mr. Stewart's address, which was characterized by a warning of the activities of foreign interests against the American merchant marine, Joseph E. Sheedy was presented with an honorary membership certificate. In his response Mr. Sheedy surprised his listeners by referring to the principal speaker's warning against foreign interests as "pure bunk." Mr. Sheedy said in part:

"The trouble with American shipping is within and not without. I'm tired of the unfounded statements that foreign powers are working against the American merchant marine and I defy anyone present to present any evidence to show that foreign steamship companies have carried on any underhand campaign against our shipping.

"Speaking from my own personal experience as a shipping board representative in Europe for four years and as head of the United States lines in this country, I always found foreign shipping men willing to put their cards on the table and discuss all questions at issue openly and above-board."

Regular Line to Trenton

The Pacific Coast Direct line, operated by the Weyerhaeuser Timber Co., will inaugurate a service to and from the newly created port of Trenton, N. J. with the steamer HANLEY arriving at that port March 26. Regular sailings to the Pacific coast ports every 21 days will be offered thereafter.

A modern marine terminal at Trenton is operated under the direction of Bernard J. Walsh, city commissioner and Arthur W. Dover, port manager. The present channel has a depth of 20 feet, at mean low water. A special committee of the public works administration is now considering allocation of funds to dredge the channel.

Late Decisions in Maritime Law

Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review

By Harry Bowne Skillman

Attorney at Law

BOTH a steamer without a lookout in the bow on a dark night, and sailing a much-used channel, down the Chesapeake bay from Baltimore to Norfolk, and a motor yacht, the owner and commander of which, with full knowledge that the steamer was overtaking it failed to keep a flash light, used as a stern light, constantly lighted and on the steamer, held at fault for collision. It has long been settled, said the court in the case of *VERONA*, 65 F. (2d) 714, that in case of collision of vessels, where both are in fault, the maritime rule is to divide the entire damage equally between them.

* * *

ATUG, negligent in leaving mooring in a river and cutting across the bow of a steamship properly proceeding up stream with a clear river ahead, could not recover damage due to collision whether she knew of the steamship's presence or not.—*New Orleans Coal & Bisso Towboat Co. v. Gaston Steamship Co.*, 65 F. (2d) 722.

* * *

A BARGE having no means of self-propulsion, but employed upon navigable waters is a vessel subject to the admiralty jurisdiction of the United States courts, it was declared in the case of *Self v. Central Station Equipment Co.*, 65 F. (2d) 789. It was also held that a contract for repairing a vessel, made by the owner, is a maritime contract creating a lien upon the vessel enforceable in rem, it being immaterial that she is laid up at the time. There are many cases holding that a dredge or a barge with a pile driver, employed on navigable waters, is subject to maritime jurisdiction. A distinction is made where the supplies are furnished for the benefit of the owner, and not for the vessel, and she is not at the time employed in a maritime venture. In such cases a lien on the vessel is denied.

* * *

FOR physical damage done to cargo the cargo owner may recover in full from the noncarrying vessel, and this notwithstanding that, as between the cargo owner and the carrier, the latter, though at fault in the collision, is not liable because of the Harter act. One-half of the amount so paid by the noncarrier to

the cargo owner will be charged against the carrier in settling the controversy between them, thus indirectly making the carrier liable up to one-half the damage to cargo. The liability of the cargo owner to contribute in general average toward sacrifices or losses suffered by the shipowner is comparable to the liability of an insurer of maritime risks. Where the damage to hull is caused solely by the fault of a stranger, the primary liability to make the loss good is on the stranger, and the liability of the cargo owner to the shipowner in general average is no more than secondary. Where a collision is brought about by negligent navigation of both vessels, there is no obligation on the cargo owner to contribute in general average to the sacrifices or losses of the carrier, in the absence of an express agreement to make the contribution. With such an agreement there is a liability on the cargo owner to contribute in general average, but that liability is still secondary. The primary responsibility is upon the vessel for its proportionate share of the injury. If the cargo owner has made good to the carrier part of the loss incurred, the carrier on later recovery against the other vessel must account to the cargo owner for a proportionate amount when the damages have thus been diminished.—*TOLUMA*, 4 Fed. Supp. 344.

* * *

THE owner of a ship, sustaining a greater loss to cargo than the ship colliding therewith, was not liable for the latter's loss, and hence cannot recover under a clause in a club insurance policy indemnifying against loss from liability in connection with the cargo.—*New York & Cuba Mail Steamship Co. v. American Steamship Owners' Mutual Protection & Indemnity association*, 4 Fed. Supp. 347.

* * *

THAT a claim for damages to a vessel, except in most unusual circumstances, must be limited to the value of the vessel, seems well settled. If the cost of repairing a vessel injured in collision be greater than the price at which a vessel to replace her could be purchased in the open market, obviously such ves-

sel ought to be considered a total loss, and the measure of damages recoverable is her market value, with interest from the time of collision, and incidental expenses. It is fundamental in the law of damages that the injured party is entitled to compensation for the loss sustained. Where property is destroyed by wrongful act, the owner is entitled to its money equivalent, and thereby to be put in as good position pecuniarily as if his property had not been destroyed. In the case of the total loss of a vessel, the measure of damages is its market value, if it has a market value at the time of destruction.—*RUTHIE M.*, 4 Fed. Supp. 317.

* * *

TO RECOVER for death of a seaman, plaintiff must prove that the seaman is dead, that his death was due to personal injury resulting from defendant's negligence, and that at the time of death the seaman was employed by defendant. Where the captain, operating a fishing vessel under agreement for sharing proceeds of the catch, employs a crew and controls all operations of the vessel, he becomes the owner pro hac vice, and the crew is in the employ of the master and not the owner, as regards liability for death of a member of the crew resulting from negligence.—*Cromwell v. Slaney*, 65 F. (2d) 940.

* * *

OWNER and charterer, not in privity with the master navigating a tug with an insufficient crew, could limit liability to an injured seaman to the value of the tug plus accrued freight.—*Scheffler v. Moran Towing & Transportation Co.*, 4 Fed. Supp. 255.

* * *

MOORING an old boat in a way that imposes on the boat a strain greater than that generally imposed on a boat used for freight or passengers under like conditions, renders the boat unseaworthy, so that a steamer, when operated in a reasonably careful and customary manner, was not liable for damage to the boat caused by swells from the steamer.—*JIM AND BILL*, 4 Fed. Supp. 258.

Marine Business Statistics Condensed

Record of Traffic at Principal American Ports for Past Year

New York

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	246	1,338,534	258	1,405,365
November	230	1,157,029	244	1,267,897
October	270	1,481,453	251	1,406,668
September	269	1,663,403	277	1,633,829
August	277	1,656,291	280	1,676,614
July	270	1,477,769	256	1,397,794
June	249	1,482,801	264	1,580,337
May	255	1,573,337	244	1,513,231
April	232	1,330,774	232	1,311,863
March, 1933	243	1,466,812	264	1,536,778

Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)
(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	54	175,715	45	135,969
November	47	144,111	40	119,896
October	68	186,588	51	152,700
September	65	182,418	44	126,290
August	61	181,283	61	178,894
July	69	203,042	53	151,781
June	51	152,234	54	149,616
May	58	157,704	49	141,334
April	63	193,946	41	131,990
March, 1933	60	192,817	43	141,445

Boston

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	84	303,806	52	236,871
November	90	323,540	62	230,969
October	96	335,488	60	210,010
September	110	348,981	80	279,531
August	129	453,348	101	329,686
July	124	410,500	96	379,721
June	118	378,179	93	303,239
May	111	295,854	83	254,667
April	86	271,864	69	226,862
March, 1933	85	259,203	65	240,768

Portland, Me.

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	13	31,801	13	32,589
November	15	29,335	18	35,579
October	14	27,953	14	32,913
September	15	26,225	12	28,028
August	16	28,877	18	32,727
July	11	24,324	9	23,063
June	11	24,615	12	26,271
May	13	19,020	13	23,395
April	5	9,254	5	7,387
March, 1933	9	24,186	10	23,989

Providence

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	5	5,089	2	8,350
November	3	8,568	4	12,794
October	4	13,606	4	9,730
September	2	4,430	5	13,279
August	6	11,862	4	10,186
July	3	6,171	2	9,465
June	6	16,192	2	4,437
May	3	10,490	3	3,834
April	8	30,156	2	5,650
March, 1933	4	17,052

Portland, Oreg.

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	31	119,833	51	184,646
November	29	108,890	35	130,457
October	26	102,926	46	173,030
September	25	97,576	38	141,839
August	22	83,506	34	129,908
July	26	99,339	29	111,559
June	20	78,651	34	120,089
May	25	98,688	28	105,115
April	17	67,220	24	97,104
March	20	79,537	43	162,970
February, 1933	25	97,554	34	130,014

Baltimore

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	94	298,001	92	286,746
November	90	270,023	88	267,784
October	88	284,997	90	289,864
September	85	273,994	84	270,189
August	95	299,114	98	307,841
July	91	272,589	90	282,788
June	65	205,724	71	240,487
May	79	237,046	78	229,333
April	63	198,940	58	178,957
March	72	228,806	72	223,594
February, 1933	63	195,299	75	226,672

Norfolk and Newport News

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	13	37,649	33	85,986
November	12	24,053	38	79,620
October	8	18,873	38	83,525
September	10	24,615	24	53,036
August	8	16,472	34	68,011
July	16	32,370	34	71,798
June	16	30,163	31	60,544
May	18	33,521	32	68,941
April	14	39,010	36	100,485
March, 1933	18	56,097	42	111,038

Jacksonville

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	8	15,083	11	22,837
November	8	13,405	8	19,108
October	11	24,365	6	8,893
September	8	11,528	7	13,086
August	7	12,477	7	13,152
July	13	22,553	11	25,670
June	9	22,192	6	12,222
May	5	13,102	9	16,275
April	3	8,297	8	20,260
March, 1933	7	18,536	9	18,137

Key West

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	22	38,764	22	38,764
November	23	33,556	22	31,330
October	22	37,180	23	39,878
September	22	38,648	23	38,659
August	18	33,210	18	32,716
July	24	39,400	22	37,180
June	27	40,569	27	42,160
May	41	55,097	39	59,075
April	41	50,121	35	47,458
March, 1933	42	57,720	39	54,508

Mobile

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	123	279,151	109	253,209
November	114	260,755	114	249,344
October	118	247,474	124	297,436
September	116	265,547	113	266,183
August	100	223,940	102	203,716
July	110	221,610	114	236,622
June	97	206,147	91	183,736
May	95	210,743	105	231,000
April	105	209,469	109	235,429
March, 1933	96	234,328	91	206,064

Seattle

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	154	533,840	157	544,556
November	177	574,203	153	518,654
October	176	618,298	165	572,714
September	151	496,684	149	513,291
August	183	604,618	161	573,703
July	166	545,372	169	554,228
June	36	160,127	36	157,887
May	37	149,245	38	164,025
April	41	188,899	40	180,517
March, 1933	47	194,485	51	216,803

New Orleans

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	139	398,112	152	443,496
November	148	439,238	152	430,631
October	154	467,332	169	506,324
September	154	443,981	168	470,271
August	144	420,570	151	429,183
July	169	468,111	184	493,775
June	147	422,280	146	422,235
May	150	444,982	151	434,952
April	142	409,411	154	416,833
March	161	464,728	161	457,880
February, 1933	128	378,040	127	366,948

Charleston

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	35	111,420	32	97,473
November	43	123,628	39	109,151
October	34	97,585	33	91,526
September	42	116,048	32	83,944
August	33	92,987	27	76,881
July	35	102,115	29	82,742
June	32	84,362	28	75,023
May	21	53,125	20	49,888
April	19	49,280	20	52,449
March, 1933	35	99,612	29	83,243

Galveston

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	19	40,552	90	279,537
November	16	37,590	85	262,800
October	21	44,388	104	304,402
September	10	19,602	94	277,642
August	19	44,012	69	205,442
July	22	33,718	77	213,821
June	27	56,231	79	227,842
May	27	58,632	86	261,124
April	27	64,360	73	215,020
March	19	34,677	83	239,683
February, 1933	17	29,935	69	200,485

Los Angeles

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	169	639,444	164	629,462
November	143	539,624	162	592,724
October	160	623,572	152	592,212
September	154	562,597	152	561,294
August	156	578,255	156	605,610
July	165	641,116	152	601,731
June	189	670,782	171	671,704
May	190	600,184	185	630,905
April	178	625,508	190	614,741
March, 1933	152	550,205	167	599,191

San Francisco

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1933....	137	616,820	172	739,604
November	144	619,874	182	806,020
October	169	753,650	168	717,133
September	150	654,888	141	658,887
August	174	748,739	170	743,918
July	156	710,857	154	717,664
June	162	715,236	162	738,436
May	160	717,412	161	680,493
April	138	733,163	150	652,593
March, 1933	145	667,902	156	693,893

Latest Data on New Marine Work

Information on New Ships Ordered—Building and Repair Contracts Let—Shipping Board Loans Made, Authorized or Pending

THE United States navy yard at New York on Jan. 31 is to launch destroyer No. 350. The new destroyer will be named the U. S. S. HULL and the sponsor is to be Miss Patricia Louise Platt of New York, a descendant of the brother of Commodore Issac Hull for whom the new destroyer is named.

Authorized by acts of congress Aug. 29, 1916 and Feb. 28, 1931, the HULL will be the first of the new destroyers to be launched. The U. S. S. FARRAGUT, building by the Bethlehem Shipbuilding Corp., Quincy, Mass., is to be launched on Feb. 14.

Dimensions of the HULL are: length, 334 feet; beam, 34 feet, 3 inches; mean draft, 9 feet, 3 inches; and standard displacement, 1500 tons. Her keel was laid March 7, 1933 and the probable date for completion is Aug. 11, 1934.

Order Two Ocean Tankers

In the January MARINE REVIEW it was reported that the Standard Vacuum Transportation Co., had received bids on Dec. 18 for building two ocean tankers. These tankers are to be propelled by geared steam turbines and not by diesel engines as stated.

Award of contract has now been made to the New York Shipbuilding Co. Camden, N. J., for building these two tankers, and they are designated as shipyard hulls Nos. 414 and 415. The new vessels are to be built on the Isherwood system of construction, and are to be 500 feet in length, 65 feet, 9 inches in beam, and will each have a deadweight of 15,000 tons. Propulsion will be by means of single screw driven by double reduction geared turbines of approximately 4000 shaft horsepower. Steam will be generated by marine watertube boilers at 375 pounds gage pressure per square inch.

Keels Laid at Fore River

On Jan. 2 the keels for four warships were laid at the Fore River yard, Quincy, Mass., of the Bethlehem Shipbuilding Corp. Of the four, one was a heavy cruiser to be named the VINCENNES. Under the terms of the treaty the keel for this cruiser which is the seventeenth of a program of eighteen could not be laid down until Jan. 1. The other three vessels for which keels were laid are 1850-ton destroyer leaders and are said to be the first of their type to be

built for the United States navy. These destroyers will cost about \$3,-896,000 each. One of the two destroyers will be named the MOFFETT in honor of Rear Admiral William Moffett who lost his life in the AKRON disaster last April.

Seattle Shipyard Active

Wharf extensions and other additional facilities at the Seattle plant of the Lake Union Dry Docks & Machine Works are being completed in preparation for the beginning of the construction of the three steel patrol boats for the coast guard, contract for which was awarded to this company.

This yard recently completed the 126-foot wooden hull tuna fishing vessel SEA BOY built for the Franco-Italian Packing Co., San Pedro, Calif. This vessel has one 400 horsepower main propelling diesel engine and two 80 horsepower diesel auxiliary engines. Except for the galley range the vessel is electrically equipped throughout. She is one of the finest vessels of her type on the Pacific coast and has a net registered tonnage of 203. While cruising in service she carries a crew of 14, including a wireless operator. The SEA BOY has left for the tuna fishing grounds off the Mexican coast.

Extensive hull repairs amounting to approximately \$75,000 are being made to the liner TACOMA of the Tacoma and Oriental Steamship Co. This vessel went ashore on her last voyage to the Orient.

Increase in Shipbuilding

An encouraging increase in private shipbuilding in the United States during the last quarter of last year is noted by the American Bureau of Shipping. On Jan. 1, 1934, American shipyards were building ten steel merchant vessels, each over 500 gross tons, making a total of 35,900 gross tons. This compares favorably with a total of 12,300 gross tons under construction Oct. 1. In addition to the aforementioned ten vessels, 11 small vessels aggregating 5820 gross tons were under construction on Jan. 1. This compares with 12 small vessels aggregating 6500 gross tons under construction Oct. 1, 1933.

The additions in construction of steel vessels of over 500 gross tons during the last quarter are as follows: One diesel tanker of 1200

gross tons, 247 feet long, 40 feet beam and 14 feet, 6 inches depth, with 800 horsepower, for the Gulf Refining Co., building at the Sparrows Point plant, Baltimore of the Bethlehem Shipbuilding Corp. Two ocean going, turbine driven, tankers of 9100 gross tons each, (referred to in a separate item on this page) for the Standard Vacuum Transportation Co., under construction by the New York Shipbuilding Co., Camden, N. J. One diesel electric tanker of 600 gross tons for the Atlantic Refining Co. under construction by the Sun Shipbuilding & Dry Dock Co., Chester, Pa. And three diesel tankers, each of 1200 gross tons, and 750 horsepower, for the Standard Vacuum Transportation Co. under construction by the United Dry Docks Inc., Staten Island, N. Y.

New Bids for Cutters

It was reported that new bids will be asked for the construction of two steel cutters for the United States Public Health service for which the Wallace Bridge & Structural Steel Co., Seattle, was low bidder at \$132,556. The same company was the low bidder, among private shipyards, for two of the harbor cutters for the coast guard, four of which, it has been reported, have been awarded to the United States navy yard, Charleston, S. C.

Mississippi River Lock

Fourteen proposals were received Jan. 11, by the United States district engineer Rock Island, Ill., for the construction of lock No. 11, Mississippi river, in the vicinity of Dubuque, Iowa.

The grand totals of the bids varied from a high of \$1,697,802.88 to a low of \$1,442,980.94. The high bidder was G. L. Carlton, St. Louis, and the low bidder was Henry Ericsson Co., Chicago. The total estimated government cost was \$1,673,384.17. Certain informalities in several of the bids were noted in the abstract prepared by the district engineer. As this is written no action is indicated in the award of contract.

Bids are to be opened Feb. 3 at the office of the division engineer, United States engineers, Kansas City, Mo. for supplying 1560 pieces flanged steel pipe for 28-inch pipe line suction dredge units.

A Large Naval Program is Proposed by Vinson

During the week ending Jan. 13, Representative Carl Vinson, chairman of the committee on naval affairs of the house, introduced a bill to construct the United States navy up to treaty strength and to keep it there. In introducing his bill Representative Vinson issued a statement in part as follows:

"The treaties signed at Washington, Feb. 6, 1922 and at London April, 22, 1930 fixed the strength in each category which may be possessed by the navies of the United States, Great Britain and Japan.

"Japan has already provided for the full naval strength which she is permitted under these treaties and Great Britain seems practically certain to do so. United States, however, is shockingly and dangerously deficient in modern ships and will remain so even after all of the new vessels are completed.

"It is essential to our national safety that we undertake, without any further delay, a program designed to bring the United States navy to the prescribed strength. If the naval conference scheduled to meet in 1935 should alter the established limits, we must, of course conform to the new limits, but in the meantime we must proceed on the basis of the treaties now in effect.

"In order to obtain the best designs, the best workmanship, the least cost, and the minimum disturbance to industry, the rate of shipbuilding must be steady. We cannot afford to continue the old, wasteful method of building a navy by alternate spasms of intense activity and complete idleness."

The main features of the bill introduced by Representative Vinson are as follows: To authorize the President to undertake prior to Dec. 31, 1936, or as soon thereafter as he may deem it advisable, (in addition to the five cruisers not yet constructed under the act approved Feb. 13, 1929 and in addition to the vessels being constructed pursuant to executive order of June 16, 1933), the construction of:

(a) One aircraft carrier of approximately 15,000 tons standard displacement, to replace the experimental aircraft carrier LANGLEY.

(b) Destroyers of an aggregate tonnage of 99,200 tons to replace overage destroyers.

(c) Submarines of an aggregate tonnage of 35,530 tons to replace over age submarines.

Also that the President of the United States is authorized to replace by vessels of modern design and construction, vessels in the navy in categories limited by the treaties signed at Washington Feb. 6, 1922 and at London April 22, 1930, when their replacement is permitted by the said treaties.

The purpose of the bill is to establish definitely the composition of the United States navy, with respect to the categories of vessels limited by the aforementioned treaties, at the limit prescribed by these treaties.

A bill authorizing naval construction has also been introduced by Representative Fred Britten, ranking Republican member of naval affairs committee. Representative Britten's bill provides for the construction of specific vessels each year for five years and sets a limit of cost for each ship. His bill does not provide a blanket authorization for replacement.

Under the measure introduced by Representative Britten the following naval vessels would be laid down each year:

- 1. In 1935, one 8-inch gun cruiser, two 6-inch gun cruisers, two destroyer leaders, twelve destroyers, and six submarines.
- 2. In 1936, one aircraft carrier, one 6-inch gun cruiser, two destroyer leaders, twelve destroyers, and six submarines.
- 3. In 1937, one 6-inch gun cruiser, one destroyer leader, twelve destroyers and six submarines.
- 4. In 1938, one 6-inch gun cruiser twelve destroyers and six submarines.
- 5. In 1939, one 6-inch gun cruiser, twelve destroyers and five submarines.

Bids were to be opened Jan. 25 by the United States engineer office, Vicksburg, Miss., for altering and repairing the towboat TOLLINGER.

United States Engineers, Bids Requested

The United States Engineer office, Vicksburg, Miss., on Jan. 16 issued plans and specifications and requested bids, to be opened Feb. 15, for the construction of two mooring barges for bank grader, having a length molded, of 150 feet; width molded, 30 feet; and depth molded, 7 feet.

The United States Engineer office, Customhouse, San Francisco, has invited bids, to be opened Jan. 26, for the manufacture and delivery to the United States engineers storehouse, San Francisco, of two new power operated and controlled watertight bulkhead doors for the United States engineer seagoing hopper dredge A. MACKENZIE. Alternate bids will be received for furnishing hydraulic, pneumatic and electric powered doors. The doors and frames should be of cast iron and of an approved substantial design. All doors should slide horizontally, and shall have bronze rubbing faces to wedge against the frame to make watertight seal when door is closed.

The office of the division engineer, United States engineer, Kansas City, Mo., will open bids on Feb. 9 for furnishing, gallows frame, hog frames, rods, stays and safety device for the Fort Peck dredges.

Diesel Cannery Tenders

The Ballard Marine railway, Seattle, received a contract from the Superior Packing Co., Seattle, for a 75 foot tender in which will be installed one 140 horsepower Fairbanks, Morse & Co. diesel engine. A 70-foot cannery tanker is to be built by the Gulowsen-Grei Co., Seattle, for Livesay Bros., Ketchikan, Alaska. This vessel is to be powered with a 75 horsepower Atlas diesel engine. Mojean & Erickson, Tacoma, Wash., has begun work on a 72-foot cannery tender designed by H. C. Hanson, Seattle naval architect, for the Annette Island Packing Co., Seattle, in which will be installed one 175 horsepower diesel engine. A 74-foot tender is under construction by the Western Boat Co., Tacoma.

Bunker Prices

At New York			At Philadelphia			Other Ports	
Coal	Fuel oil	Diesel engine	Coal	Fuel oil	Diesel engine	Jan. 18, 1933	
F. o. b.	alongside	oil alongside	trim in bunk	alongside	oil alongside		
per ton	per barrel	per gallon	per ton	per barrel	per gallon		
Jan 18, 1934...5.35@5.20	1.25	4.79	Jan. 18, 1934...4.65@4.50	1.25	4.76	Boston, coal, per ton.	\$ 7.21
Dec. 18.....5.35@5.20	1.25	4.79	Dec. 18.....4.65@4.50	1.15	4.76	Boston, oil, f. a. s. per	
Nov. 18.....5.35@5.20	1.15	4.70 1/2	Nov. 18.....4.65@4.50	1.15	4.76	barrel.....	\$1.10
Oct. 18.....5.00@5.75	1.15	4.70 1/2	Oct. 18.....5.00@5.75	1.15	4.76	Hampton Roads, coal, per	
Sept. 18.....4.45@4.75	1.15	4.70	Sept. 18.....4.45@4.75	1.15	4.88	ton, f.o.b. piers....	\$4.50-4.80
Aug. 18.....4.45@4.75	.90	4.32	Aug. 18.....4.45@4.75	.90	4.28	Cardiff, coal, per ton....	14s 0d
July 18.....4.30@4.60	.90	4.32	July 18.....4.30@4.60	.90	4.28 1/2	London, coal, per ton....	s -d
June 18.....4.30@4.60	.80	4.08	June 18.....4.30@4.60	.80	4.04	Antwerp, coal, per ton... 17s	0d
May 18.....4.30@4.60	.80	4.08	May 18.....4.30@4.60	.80	4.04	Antwerp, Fuel oil, per ton	67s 6d
Apr. 18.....4.30@4.60	.80	4.08	Apr. 18.....4.30@4.60	.80	4.04	Antwerp, Diesel oil, per	
Mar. 18, 1933...4.30@4.60	.80	4.08	Mar. 18, 1933...4.30@4.60	.80	4.04	ton.....	82s 6d
						British ports, Fuel oil...	87s 6d
						British ports, Diesel oil.	102s 6d

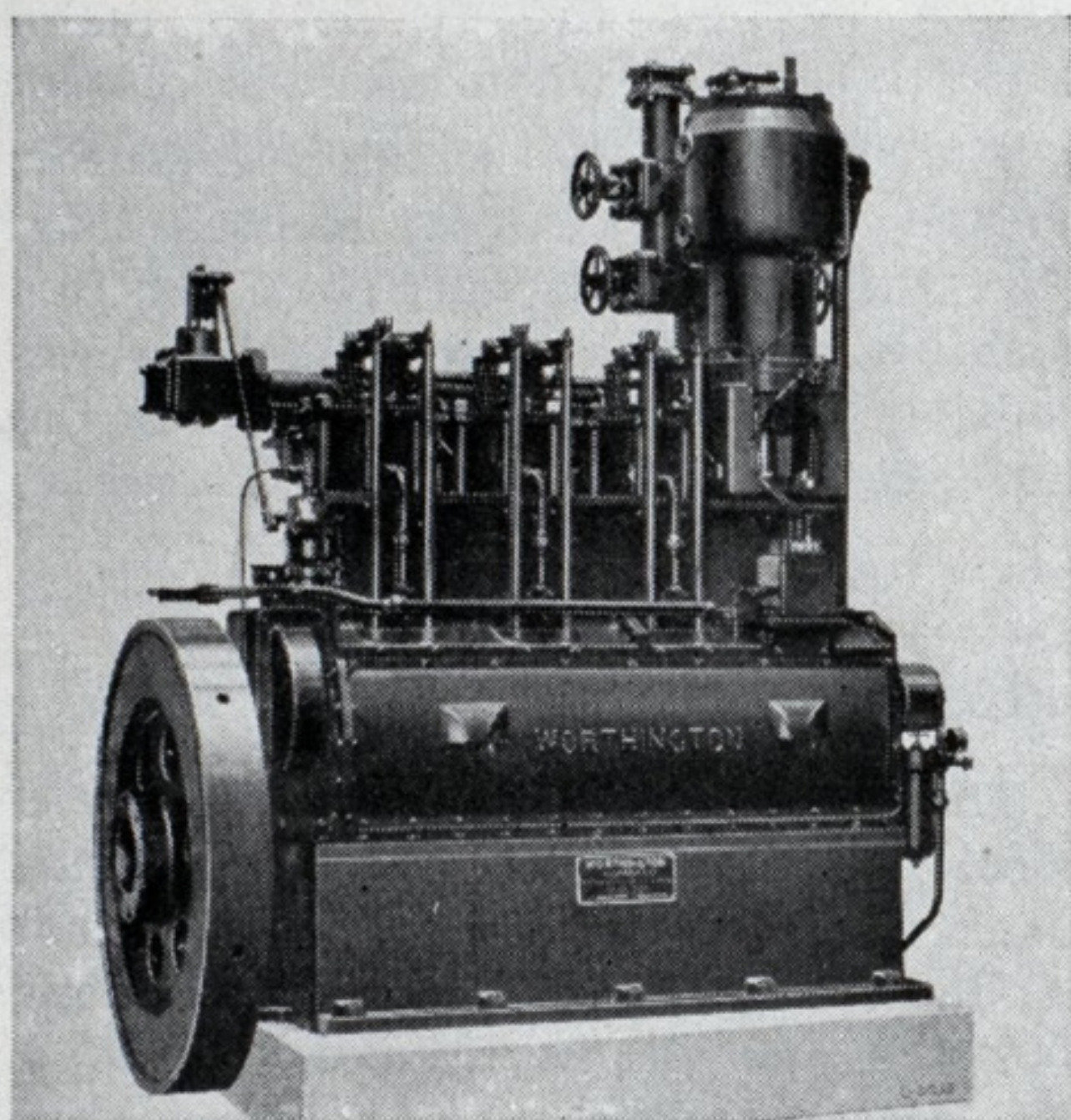
Note: Figures given for coal at New York and Philadelphia are for Classes A and B according to the Code; Class C is slightly less.

Equipment Used Afloat and Ashore

Compressors — Suction Pumps — Gas Indicators — Photo-electric Relay — New Lubricant — Thermit Welding — Turbine Driven Pump — Turbine Geared Equipment

A COMPACT type of diesel or gas engine driven refrigeration compressor has recently been developed by the Worthington Pump & Machinery Corp., Harrison, N. J. In this unit designated as "unibloc" a compressor cylinder is mounted directly on the base of a standard Worthington vertical four cycle, diesel or gas engine as shown in the accompanying illustration. The piston of one power cylinder is replaced by a crosshead, connected by a piston rod to the compressor cylinder directly above.

High efficiency is claimed for this unit because of the elimination of



Unibloc refrigeration compressor

mechanical friction, placing of the suction valve in the top of the piston, and the adaptability of the Worthington feather valve to higher speeds of operation. The valve is operated automatically by the suction and discharge pressure of the compressor, the strips "breathing" between a ground face and curved guard. It is possible to maintain normal engine speeds with this valve.

Lubrication of the compressor piston and stuffing box is accomplished by a mechanical force-feed lubricator, driven directly from one of the engine valve push rods.

Compressors of this type are now available in a complete range of sizes for handling of refrigerants.

Double Suction Pumps

A NEW line of double suction split case pumps specially designed for operation at high speed has been developed by Morris Machine Works, Baldwinsville, N. Y.

This company is said to be the originator of the centrifugal pump and the oldest American manufacturer of this type of pumping equipment.

These pumps have been developed to provide a suitable unit for direct connection to electric motors or steam turbines operating at 3500 revolutions per minute. They may also be belt driven or operated through gears by low speed drivers, using diesel or gasoline engines.

While these high speed pumping units follow the principles of standard centrifugal pump design, each element has special provisions to meet high speed requirements. The impellers, shaft and couplings are first individually tested for perfect rotative balance and then the entire rotating unit is similarly tested before the pump is assembled. The design and finish of the impeller are also especially refined to minimize friction and eddy losses.

Deep groove, heavy duty, precision ball bearings are used on each side of the pump to take care of both radial and thrust loads, and the bearing supports, bed plate, pump casing, and shaft are all specially proportioned to provide complete rigidity.

These pumps are built in sizes from 1½ to 5 inches and are suitable for general pumping duty and for handling water and other liquids.

Electrodes for Cast Iron

ELECTRODES for welding cast iron by the shielded arc process have been developed by the Lincoln Electric Co., Cleveland. The new electrode not only simplifies the welding procedure for cast iron but also produces a weld with greater strength and ductility than the cast iron.

This electrode has a steel core surrounded by a heavy flux coating which protects the arc from gases injurious to the weld which are present in the atmosphere. One of the outstanding advantages claimed is the remarkably low heat with which it can be used, thus reducing the possibility of cracking. It is manufactured in only one size, ⅛ inch, and is used with approximately 80 amperes of current.

Welding is done intermittently, not over a 3-inch bead being laid down at one time. As each bead is welded it is peened lightly, thoroughly cleaned and allowed to cool somewhat before the next bead is de-

posited. Due to the extremely low current with which it is used the hardening effect ordinarily present along the line of fusion is materially reduced. Thus the weld is more machinable than most cast iron welds.

A Photo-electric Relay

A NEW photo-electric relay using the visitron F 2 photo-electric cell which operates without external source of voltage and without amplification has been developed by G-M Laboratories Inc., 1735 Belmont avenue, Chicago. The complete unit



A new photo-electric relay

incorporates one of these photo-electric cells, a sensitive relay and an auxiliary electro-magnetic relay housed in a small compact cast aluminum case 6¼ x 5 5/16 x 4 inches. The cell can be mounted behind a glass window in the front of the case or externally at any point within hundreds of feet of the sensitive relay. The unit can be completely weather-proofed.

Because the photo-electric cell requires no external voltage and no amplification, this unit can be used in locations not served by electric power lines and since there are no tubes to replace it will operate for long periods without attention.

This device is particularly applicable for controlling lighthouse beacons, night lights on vessels at anchor, obstruction lights, and signal and lighting systems.

The cells, the auxiliary relays, or the two relays in combination can be supplied either assembled or individually as required for various electrical or photo-electric applications.

A New Lubricating Oil For Electric Motors

MARINE engineers, realizing the need for a special oil for lubricating electric motors, will welcome the recent announcement of the Gulf Refining Co., that a new lubricant has been developed for that purpose. The new product has been named Gulf electric motor oil and is especially designed for lubricating electric motors in sizes from one-eighth horsepower to 10 horsepower used on board ship.

Wallace Thomas, manager of specialty products for the Gulf Refining Co., in referring to this lubricant which is brand new and entirely different from anything else on the market has this to say:

"Although oils designed for more general application have been used to lubricate electric motors, Gulf electric motor oil is the first lubricant made specifically for this purpose. A mineral oil of the highest quality refined by the exclusive Alchlor process, it furnishes perfect lubrication at all times, will not form sludge or gum, and will feed readily to the bearings. Because of its refinement and proper body, it will stay in a motor longer, thus materially increasing the periods between oiling."

Thermit Welding Repairs

THERMIT welding is called industry's master maintenance tool by the Metal & Thermit Corp., 120 Broadway, New York, in its recently published illustrated description of its many applications.

A practical description is given of thermit welding which is an aluminothermic process well known and successfully employed for more than thirty years in the welding of heavy sections of ferrous metals. Actual welding in the repair of large machine parts, huge marine castings, crankshafts, and similar structures by the thermit process is described in detail. Particular attention is also given to the economy and permanency of repairs by this method.

Actual cost data are given in a number of instances.

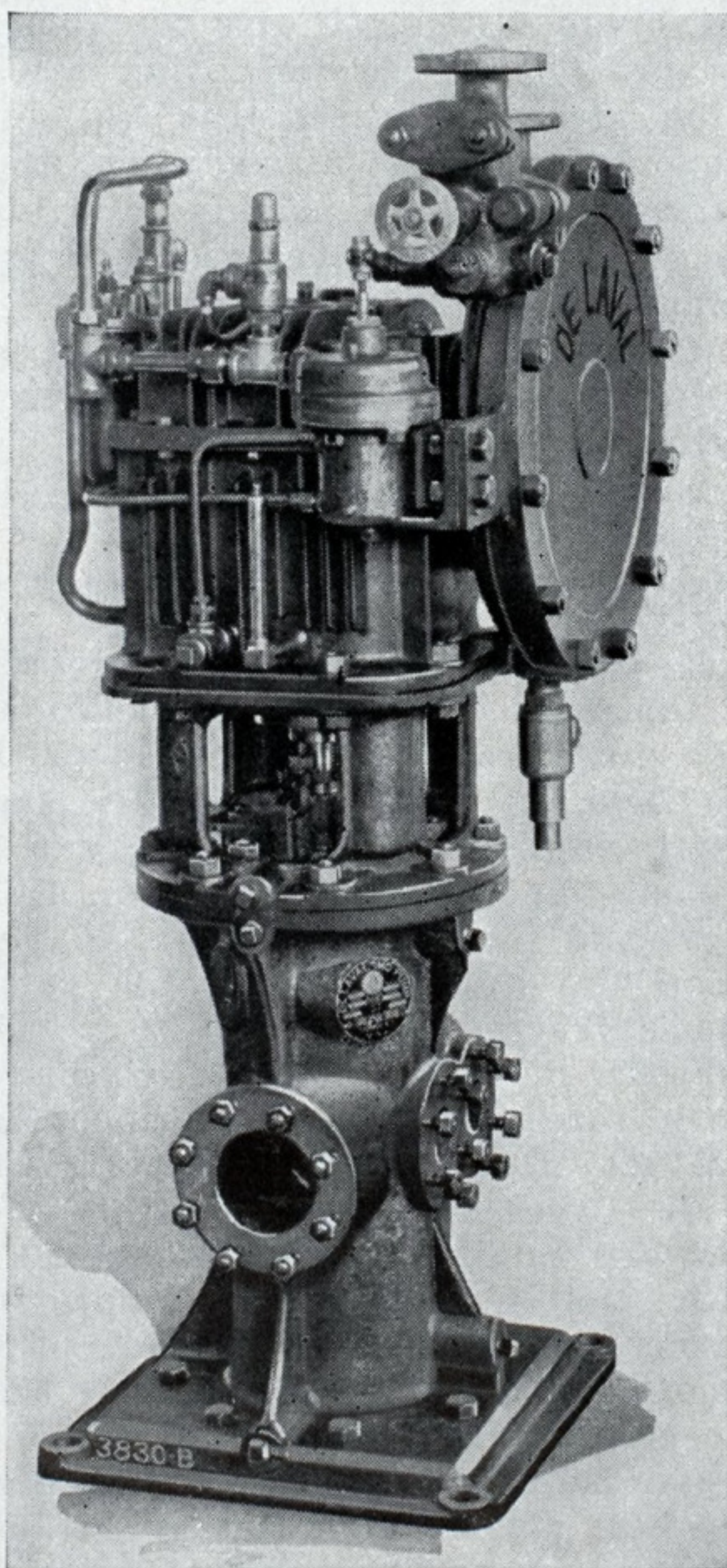
Turbine Driven Fuel Pump

ROTARY displacement pumps are usually preferred for handling oil, whether fuel oil or lubricating oil, as they have no valves, operate without shock or pulsation, run at relatively high speeds, and in the type illustrated herewith, have only one shaft packing and no packings under high pressure. They are also exceptionally compact which is an important advantage on shipboard.

The accompanying illustration shows a small geared turbine driven rotary displacement pump recently developed by the De Laval Steam Turbine Co., Trenton, N. J. Because of the use of a worm reduction gear, the small steam turbine can be run at a speed appropriate to high efficiency while the pump is operated at a speed which, while comparatively high, would not be favorable to good economy in a turbine of such small output. Consequently this pump combines good steam economy with the simplicity and low cost of a velocity stage turbine with only one pressure stage.

The steam consumption is about half that of ordinary steam pumps. Turbine speed is controlled by a small hydraulic governor operating a throttle valve.

As this unit is designed for continuous operation, oil for lubrication of the worm and gear bearings and teeth is provided by a self-contained system, including a filter through which the oil is circulated by a small pump driven directly from the worm shaft. The pressure differential maintained by this small pump on a fixed orifice also serves as a speed governing medium. The worm gear casing is ribbed to dissipate heat which greatly increases its continuous power rating. The unit will deliver oil to burners or to a lubrication system at any rate up to 500 gallons per minute.



Fuel oil pump driven through worm gear by steam turbine

Turbine Geared Equipment For Close Coupling

THE GENERAL ELECTRIC CO., Schenectady, N. Y., has developed a new line of close coupled turbine geared sets, each set consisting of a steam turbine and speed reducing gear. These new equipments are designed to drive centrifugal pumps, fans, and other relatively low speed apparatus by means of the speed reducing gear, the turbine operating at a relatively high and efficient speed. The sets are particularly applicable where exhaust steam can be used for heating purposes or for other applications. Operation is extremely simple and inasmuch as the sets are self-lubricated they require but little attention.

The housings of the turbine and gear are bolted together to form a single structure supported on the base of the turbine. This arrangement provides a compact unit with a minimum of bearings and assures a correct alignment of turbine and gear.

The turbine can be arranged to operate at steam pressures up to 400 pounds, temperatures up to 750 degrees Fahr. and back pressures up to 40 pounds gage. The speed of the low speed shaft may be within a range of 180 to 3000 revolutions per minute. The capacity of this new line of turbine geared sets ranges from 10 to 150 horsepower.

All Service Gas Indicator

AN ALL service gas indicator is the latest addition to the gas indicating equipment of the Linde Air Products Co., New York. It supplants two other indicators, the methane detector and a combustible gas indicator. The new indicator has been designed primarily for the manufactured gas industries, although it will be found of equal value in many other industries, including the marine.

It does three things: 1. Indicates how flammable and explosive an atmosphere is. 2. Shows the presence of poisonous gases and vapors. 3. Indicates any deficiency of oxygen.

It can be used with absolute safety in testing manholes, locating leaks and in purging. Like the earlier instruments, it is equipped with a body harness, is simple to operate and is complete and ready for instant use.

Oil companies, for purging equipment and testing tanks and tank cars and shipyards for testing tankers, should find the new instrument of the greatest value.

On Dec. 26 W. M. Flook, vice chairman of the board of the New York Shipbuilding Corp., resigned from that position.

Boiler Water Treatment On Lake Vessels

BOILER water purification on lake steamers during the season of 1933 is said to have been successfully accomplished by a system designed and installed by the Elgin Softener Corp., Elgin, Ill. A bulletin has recently been issued by this company describing the practical operation of its system of boiler water purification on a number of lake vessels.

The system was installed to make the boilers self-cleaning, free from scale and to safely permit operation for long periods between opening. It works automatically, removing the mud and sludge from the boilers while they are in operation with the result that clean dry steam is generated at a minimum cost. Guess work is eliminated as the system provides constant control of the boiler water. The unified control and the results effected have been a revelation to operating engineers. The particular problems which the system is designed to overcome are scale, high concentration, foaming, loss of packing due to dirty steam, corrosion, embrittlement, wasteful blowdown, broken staybolts, and fire cracks or blistered tubes.

The softening or conditioning of the boiler water and control of the boiler concentration are of equal importance. Unless provision is made to treat the water correctly, scale may occur as well as corrosion and embrittlement.

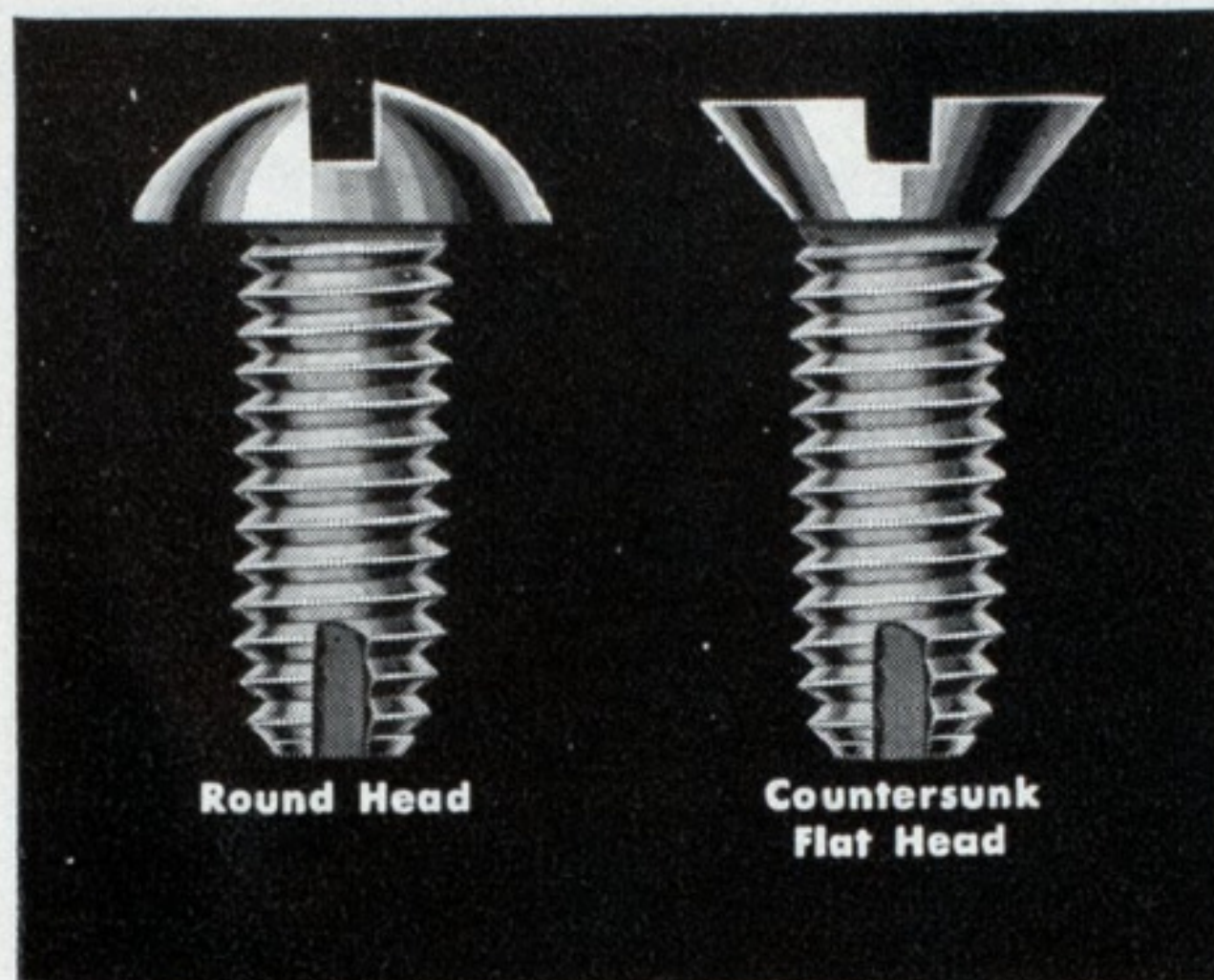
The Elgin system includes the application of chemical treatment to each individual boiler in accordance with the requirement of the boiler in order to maintain what is known as the proper chemical balance. The deconcentrator, which is a part of the system, is designed to control the accumulated mineral matter within the boiler to prevent foaming, wet steam, and a wasteful blowdown, whereas the method of treating, also a part of the system, is designed to apply the proper chemical constituents to the boiler water to prevent scale, corrosion, and embrittlement.

Self-tapping Screws

SAVING from 40 to 75 per cent in the cost of assembly operations is claimed for a new self-tapping screw of hardened steel developed by Kellogg Switchboard & Supply Co., 1066 West Adams street, Chicago. This is said to be the only self-tapping, standard thread screw with balanced flutes and twin cutting edges. It is designed to replace ordinary machine screws in assembly operations which include the fastenings of sheet steel, machinery steel, brass, bronze, aluminum, die castings, fibres, slate, ebony asbestos, bakelite, and similar hard

materials. Use of this screw entirely eliminates the necessity of tapping and its accompanying expense.

Success of the new screw is primarily due to its standard thread and twin grooves with cutting edges. Heavy metal offers too much resistance to the ordinary so-called self-tapping screws because they do not actually cut a thread but merely force the metal aside. This new screw accomplishes the tapping operation at the same time it is driven—just as a tap would. Consequently, since it cuts a thread to exactly fit its own thread, the fit is much tighter



Hardened steel, self-tapping machine screw of standard thread

than that of ordinary machine screws in tapped holes, which means that the assembling will have greater strength in resisting stress, shear and vibration.

The self-tapping screw may be retracted without damage to itself or the threaded hole. It also overcomes the problem of screws tilting when being driven because the threads properly guide the screw when first started. Hand or machine driving can be done with equal ease and assurance of a perfect job.

It is available in all standard sizes with standard heads as well as in any plated finish with special head.

Appointed Sales Engineer

C. B. Crockett, former secretary of the Industrial Truck association, and more recently associated with the firm of Crockett, Lightner and Smith, engineers, New York City, has joined The Cleveland Tractor Co., Cleveland, as sales engineer, to develop the application of this company's tractor equipment. It is the purpose of the company to make more readily available engineering and materials handling experience.

Mr. Crockett graduated from the Harvard Engineering school in 1922 with the degree of bachelor of science. He is a member of the American Society of Mechanical Engineers and is the author of various papers before that society and others. He has also contributed to trade publications on the subject of materials handling particularly in the railroad field.

Acetylene Cutting Machine For Precision Work

TO ITS line of welding and cutting apparatus the Linde Air Products Co., 30 East Forty-second street, New York, has added a new stationary cutting machine of unusual versatility. Being a precision shape cutting instrument, it is especially suitable for cutting dies, cams, and other parts that must be smoothly and accurately cut. With a cutting range of 44 inches longitudinally and 20 inches laterally, it does straight line cutting, angle cutting, beveling, circle cutting and intricate shape cutting. It requires a floor space of only 72 x 83 inches.

The new machine can be operated with a minimum of attention from either the template end or the blow pipe end, as a hand guided or as a machine guided instrument. Angles can be cut without template since the cutting head can be locked for travel in any direction. Bevel cutting is simplified; the provisions for adjusting the machine to the work make it possible to line up the blow pipe without shifting the work; and the dividing head enables the operator to set stops on work that is to be cut in several directions.

An extension so mounted as to be always steady and secure makes it unnecessary for the operator to return to the back to start the profile cutting after the entry cut has been made.

The machine consists of a carriage mounted on three point supports. The piping for the gases is all enclosed in the carriage and all drives are protected by dirt-proof casings. The motor may be specified when ordering to run on either 110 or 220-volt current. All wiring is concealed, and the switches in control are clearly labeled and easily accessible.

Order Two Polish Vessels

The Polish Transatlantic Steamship Co. has awarded contract to Italian shipyards at Trieste for building two vessels to be used by the Gdynia-American line. The vessels are to be combination passenger and freight of about 14,400 gross tons each and are to be 511 feet long, and 70 feet in beam. They are to be propelled by twin screws with a total of 24,000 horsepower giving a speed of 20 knots, thus making it possible to cover the voyage between Gdynia and New York in 8 days.

Each of the new vessels will have accommodations for 760 passengers and for 3000 tons of cargo, and a crew of 260. Delivery of the first vessel is expected July 1, 1935 and of the second in December of the same year.

Annual Report Recommends Merchant Marine Aids

In the annual report of the United States shipping board, for the fiscal year ended June 30, 1933 and issued Jan. 1, 1934, recommendations are made in connection with the merchant marine, the substance of which are as follows:

A continuance of government aid to vessels operating in foreign trade is essential for the maintenance and development of the American merchant marine. In place of using the designation "ocean mail contracts," which is a misnomer for the service rendered, this aid might more properly be granted for maintenance of essential services on "government contract routes." It is further proposed that this aid should be based, as now, on building and operating differentials, and machinery should be set up for periodical examination and possible revision of the amount of subsidy received by each American carrier.

Provision should be made for tax exemption on American vessels operating in foreign trade, including a provision whereby deductions shall be allowed from taxable incomes derived from operating profits to the extent that such profits are devoted to new ship construction in American yards.

The peace time business now handled by army and navy transports and by vessels owned and chartered by the Panama Railroad Steamship line should be transferred to privately owned American shipping interests. Funds should be appropriated to carry into effect the act of congress providing for the creation of a naval reserve.

With reference to establishing "free ports" or foreign trade zones in ports of the United States, in view of the differences of opinion as to whether or not the establishment of such zones would benefit American shipping, it is suggested for consideration that their establishment, if sanctioned by congress, be undertaken on a limited scale under direct authority of the federal government.

It is recommended that the limitation of the construction loan to the sum of \$185,000,000 be removed and that authority be given to make loans up to \$250,000,000, the ultimate amount of the fund, but that actual disbursement of money should not be made in excess of the available cash balance standing at the time to the credit of the fund. An amendment to the merchant marine act of 1920 is recommended to provide that contributions to the construction loan fund be permitted to continue until such sums, plus appropriations by congress, reach the maximum of \$250,000,000 provided by the merchant marine act of 1928.

Legislation is urgently requested

granting authority to extend, rearrange, or hold in abeyance payments due the construction loan fund, with certain restrictions which would protect the interests of the government. Authority is requested for the purchase of vessels sold under foreclosure of mortgages held by the board on account of construction loans.

Present laws relating to the division of damages in cases of collisions of vessels at sea should be changed to conform to the proposals of the international marine convention of 1910. The repeal is suggested of laws which permit alien seamen who have filed declarations of intention to become citizens of the United States and who have served for three years on American vessels to be classed and hold the same status as American born or fully naturalized citizens.

Legislation should be passed looking to the adoption of the Hague rules. The international convention for safety of life at sea signed in London May 31, 1929 by delegate from 18 governments, including United States, should be ratified by congress.

Coastwise laws should be amended to make it unlawful for foreign flag ships to engage in "voyages to nowhere" — voyages originating at ports of the United States and terminating at the same place of embarkation, without touching at a foreign port. Legislation should be enacted providing that when international loans are advanced by the United States for the purchase of American commodities and manufactured products, at least one-half of the movements should take place in American ships, provided the rates by American flag carriers are reasonable as compared with the rates of competing foreign ships operating in regular service.

Three other recommendations are made, included among which is the suggestion that the shipping act of 1916 should be amended to require interstate carriers by water, who are engaged in coastwise commerce, to file and observe their actual rates.

Pacific Freight Market

Even in the face of the holiday season the Pacific coast freight and charter market during the month of December more than held its own, and showed improvement over the major gains of the month preceding, according to the chartering department of the General Steamship Corp. Ltd. As a result prompt tramp tonnage has disappeared from the market and the berth lines in foreign trade are running with full export cargoes.

The outlook for 1934 is for continued improvement, and now that the volume of business is once again under way, freight rates should also improve.

Sale of Munson Line

(Continued from Page 22)

cipally known for its passenger and cargo service to South America and to the West Indies. For many years the line was one of the leading carriers of freight between Cuba and the United States.

It is believed that reorganization under the plan suggested will greatly strengthen the position of the Munson line.

Under the terms of the ocean mail contract held by the Munson line, a total of \$1,247,584 is paid annually by the government for 26 outward voyages in the New York-Buenos Aires run. This contract which is for a period of ten years became effective Aug. 1, 1928. In the fiscal year 1933 the total estimated amount to be paid under this mail contract was \$1,628,872.

Large Fleet of American Vessels

Should this merger go through and should the International Mercantile Marine-Roosevelt group also acquire the American Republics line, the number of American flag vessels under one control and operation will be 73, having an aggregate gross tonnage of 550,000, one of the largest privately owned American steamship companies. This great fleet will be divided into: 12 vessels in the United States and American Merchant lines; 3 vessels of the Panama Pacific Line, 5 vessels of the Baltimore Mail line, 12 vessels of the American Pioneer line (now being operated for the shipping board); twenty-nine vessels of the Munson line, and twelve vessels of the American Republics line. Such a merger would bring the International Mercantile Marine-Roosevelt group into the South American and West Indies as well as in transatlantic and intercoastal trades.

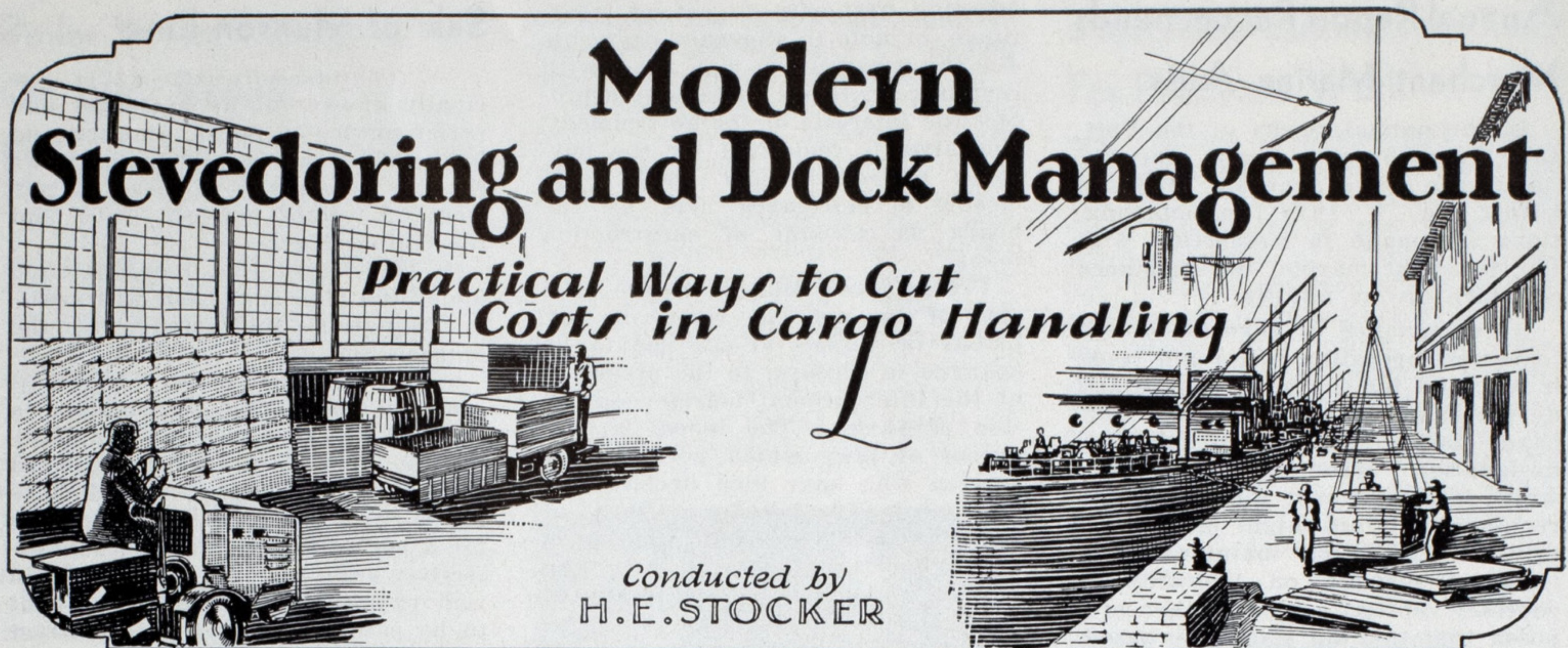
P. A. S. Franklin, president of the International Mercantile Marine-Roosevelt Steamship Co. has stated that if his organization acquires the Munson Steamship line every effort will be made to improve the service. He is confident that freight and passenger traffic between the United States and the Latin American republics will soon increase.

Long Distance Towing

The tug SUSAN A. MORAN of the Moran Towing & Transportation Co., arrived Jan. 1 at New York from Cristobal, Canal Zone with the steel hydraulic dredge WILLAMETTE in tow, enroute to Montreal. The voyage will be completed in the spring upon the opening of navigation in the St. Lawrence river.

Also the tug WYOMING arrived at San Juan, Puerto Rico from Philadelphia towing the United States army hydraulic dredge CAPTAIN HUSTON.

Both tows covered about 2300 miles.



Attention to Cargo Handling Details Gives Superior Service

By Emmett Johnson Jr.

SEVERAL years ago the American-Hawaiian Steamship Co. adopted the slogan, "superior service," and went seriously about trying to provide it. The results proved so satisfactory that the management continues to do everything possible to live up to its promise to shippers.

The company's New York operations are concentrated at Pier 6 Bush terminal in South Brooklyn. This pier which is double decked, is 1273 feet long and 265 feet wide. At its outer end is a recess into which barges and car floats are moored for loading and discharging direct to the center of the pier. There are two railroad tracks down the center of the pier which are served by the Bush Terminal railroad.

Westbound cargo is received at New York for movement, via the Panama canal, to Pacific coast destinations via the ports of Los Angeles, San Francisco, Portland, Oreg., Seattle and Tacoma, Wash.

In order to aid shippers in despatching and keeping a check on their trucks while at the pier, each truck on arrival at the gate is issued a pass bearing its line number on which is stamped the time of arrival. At the same time the shipper's papers are presented to the routing clerk who stamps them for port of discharge, name of ship and segregation. Segregation includes separation into commodities such as drugs, candy, wet cargo, dirty cargo and special cargo. This separation is carried out both on the pier and in

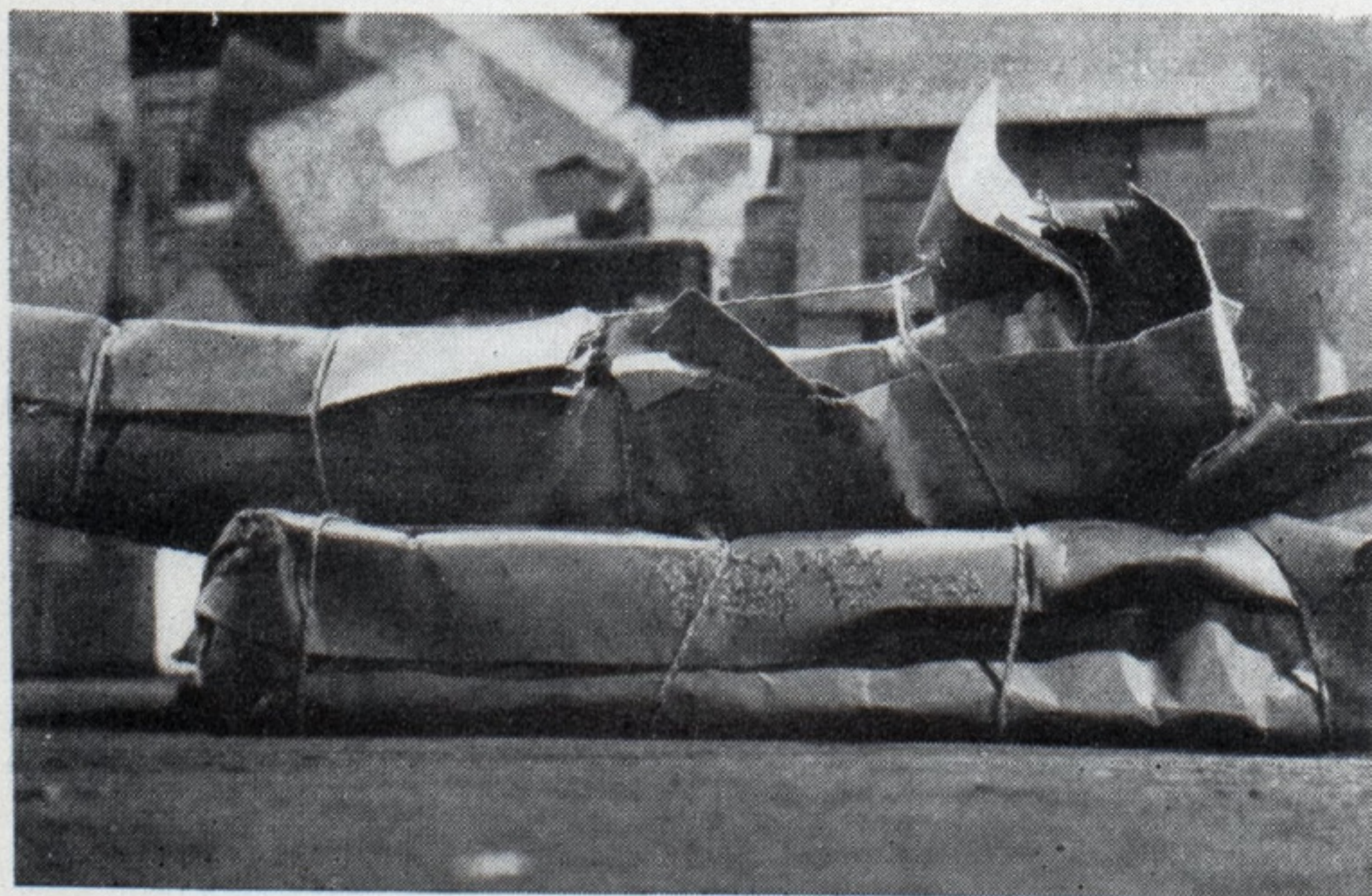
the holds of the ships.

The routing clerk also notes the clarity of the posting of all shipping orders, consignee's and consignor's name and addresses, routing at port of discharge, and any other particulars about the shipment. The carbon copy of the shipping orders is returned to the driver along with the gate pass. This he presents at the gate again and is permitted to take his truck on the pier.

There is a plainly marked driveway down the center of the pier at the end of which is a "stop" sign. Here the truckman picks up a checker who, after noting the classification of the shipment, directs the driver to the correct storage pile.

This receiving section covers an area 120 feet by 630 feet extending the entire width of one side of the terminal and along the ship's berth. Within this area are the various port piles for general cargo and smaller individual commodity sections. Here the driver discharges his truck under the direction of the checker and his goods are inspected to see if their markings agree absolutely with the shipping instructions. The checkers have explicit instructions to see that such shipping instructions agree to the "dotting of an 'i' and the crossing of a 't' with the markings on packages," not forgetting the importance of noting if the packages and cases are suitable to their contents.

After having his receipt signed by



A horrible example of how ship's cargo should not be packed. Such photographs of actual condition of packages are particularly effective in bringing out the urgent need of proper packing

the checker the truck driver returns to the gate. Leaving his truck inside he presents his signed copy of the dock receipt and his gate pass to the routing clerk.

Keeping An Accurate Tab

This dock receipt is checked against the original copy, to see that they are both identical thus assuring a correct record. The original receipt is then signed by the routing clerk and turned over to the driver with gate pass again stamped in a time clock. Subsequently the original dock receipt is sent to the New York office of the American-Hawaiian Steamship Co. and exchanged for a bill of lading. Upon leaving the pier, the driver turns in his gate pass to the gateman who immediately time clocks it and files it for reference.

How Eastbound Cargo is Handled

Eastbound cargo is from Pacific coast ports via the Panama canal for delivery at New York. Some of this cargo is delivered from the upper floor direct to barges and is transferred by water to connecting carriers, but the larger portion is delivered to trucks.

Here again a very close check is kept on the time consumed in the various movements in connection with the delivery of the freight.

On arrival at the pier, the driver is given a time clocked gate pass. He presents this along with his delivery order and freight release to the delivery clerk. Again this pass is time clocked when his orders are inspected and okayed for delivery of the goods.

He then presents his okayed orders to the head checker, who assigns him a checker, and when his turn comes he is permitted to drive on the pier. The pier storage section of his goods is posted on his delivery order and the checker goes with him to the pile, inspecting the condition of the goods and checking them into the truck while they are being loaded.

After loading, his truck is again weighed and he presents his papers to the delivery clerk, and having signed the delivery receipts, his gate pass is time clocked and his truck proceeds to the gate, where he surrenders his gate pass to the gateman for final time stamping and filing.

This time-clocking of the gate passes gives the shipper a complete check on each movement of his truck while presenting papers and delivering or receiving cargo. He can, if he wants, get from the steamship company a complete record of the time required for his truck at the pier.

In the case of flour, which is discharged from the ship direct to the second floor, the trucker goes through the same procedure with reference to papers and the time

clocking of his pass, but since exactly twenty bags are stored on separate platform to be lowered intact to the bulkhead platform for delivery, his truck is not weighed and he of course does not enter the pier.

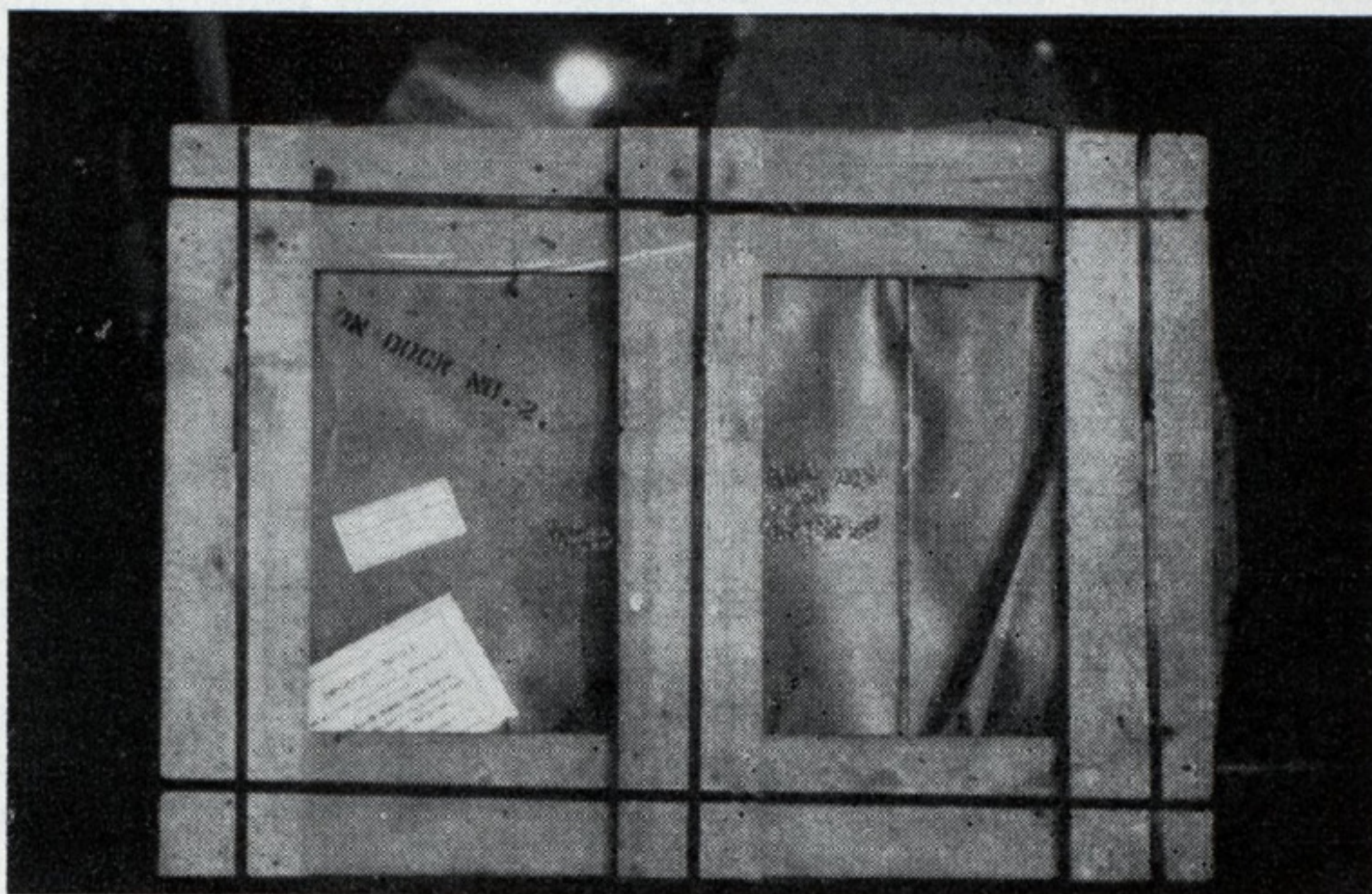
Continuous Movement of Cargo

When one notes that this company has four ships each week this covers a considerable movement of cargo. Their sailings and arrivals are as follows: westbound—sailing, Tuesday and Saturday; east bound—arriving, Monday and Thursday.

Such a schedule at the one terminal makes for virtually a continuous movement during the entire week. And this is only considering cargo which is immediately moved by the consignee.

All intercoastal cargo is allowed 10 days free storage on the piers, flour and paper are allowed 30 days by the United States intercoastal conference. The American-Hawaiian

An excellent illustration of what proper packing should be. Selected from one of many photographs, showing the care taken by the steamship company in the re-cooperation of damaged cases



line handle a considerable amount of flour, and due to the above free storage time there is at all times a large quantity remaining on the pier.

There are many ways in which the line gives service to its shippers. An example is the flour storage. As mentioned above, the flour is handled on the second floor of the pier, the central inland portion being reserved for this purpose. This is a well ventilated and well-lighted loft with doors opening the entire length on both sides and with numerous sky lights. The floor is of maple which, in addition to its ability to stand wear and maintain a smooth clean surface, gives good traction for the rubber tired electric lift trucks with which the flour is handled on platforms. Instead of being stored in large piles on the floor the flour is kept on dead skid platforms which allows each bag of the entire shipment to be inspected by the flour exchange representative.

How Flour Is Handled

The flour coming on the ships is at times somewhat mixed as to

marks. It is hoisted direct from the hold of the steamer to the upper story in especially made canvas slings. Here it is landed on tables and carried on the shoulders of men for a distance of ten feet, at the most. There are several skid platforms, as many as there are lots of flour being discharged, and these are arranged in a fan shape from the landing table. As a skid platform is filled with its particular mark, the electric lift trucks move it to pier storage which is arranged in rows and by lots and held until called for by the consignees. As the orders for delivery come to the loft the lift trucks take the skid loads to the front of the pier and they are hoisted from the truck and lowered down whichever hatchway is directly over the delivery platform into which the consignee's truck is backed. This method eliminates several handlings, it keeps the flour lots separate and also gives plenty of air circulation

between and around the bags.

Needless to say this system is operated at an additional cost to the steamship company over what the handling cost would be if the flour were placed where the consignees had to foot the entire expense of loading their trucks. Nevertheless it is a warranted extra cost in that it backs up by actual performance the company's slogan of "superior service." There are some views of this storage in the MARINE REVIEW for March, 1930.

On this upper floor, at the lower end, a considerable amount of ship's dunnage is handled. It is brought in from the Pacific coast for the company's own use. Here it is stored until completely dried and held for distribution as needed.

Dried fruit, canned goods and other types of carton packages are stored on the lower floor. In hoisting this type of cargo from the hold it is at all times handled on platform slings with iron angles on the binders which prevent the ropes from crushing or cutting the containers. These platform slings are landed on four-wheel trailers which are towed by tractors from shipside to the

proper place on the pier where the trailers are unloaded. Various types of bagged beans, which will stand very little crushing, are also landed in this manner on platform slings.

The receiving section of the lower floor (westbound cargo) warrants attention for its layout, covering as it does the entire length of one ship's berth. There are two separate piles of general miscellaneous cargo for each port of discharge, one to go in the forward hatches and the other in the after hatches. These piles are segregated for Los Angeles, San Francisco, Portland, Seattle and Tacoma, each being a pile in itself. This stacking of freight is not left merely to the whim of the truck driver. All heavy cases and boxes are stacked in the center and handled from a point about ten feet from the side of the pier (leaving room for the stevedores to work the ship). These cases and boxes are stacked toward the driveway. Against the ends of, or at the sides of, this pile all cartons and light cases are stacked. This considerably reduces the possibility of damage to the lighter packages.

Within this section are the various commodity piles. There is a specially constructed cradle platform to hold rugs and other long bales or rolls of soft, easily damagable materials. There is a special crib for drugs, one for candy, others for wet and dirty cargo. Each of these cribs is separated into sections for ports of discharge.

The Special Cargo Crib

The special cargo crib is an entirely separate section, being built in the rear of the general cargo section and in the center of the ship's berth. Immediately upon entering this section one realizes with what care "special cargo" is handled. Here is a small open office in the center of the various marked port piles. There is one man in charge of this section. He receives all cargo, lists packages by number and places a special number on the packages, according to the port of discharge. Copies of these lists are signed by the mate when the cargo is loaded, and the other copies kept on file in the pier office. The cleanliness and neatness of the piles are far above the average for a steamship terminal.

Although the function of coopering is seldom considered a department, on this pier it can really be called such. When one considers the crating department of a manufacturing concern one realizes that even though it may be complete, its work is mainly in connection with one commodity, whereas in this cooperage department a large variety of packages must be taken care of and facilities must be available to not alone repair many types and sizes of boxes, crates and cartons, but also at times, to actually con-

struct new ones.

As will be seen by the accompanying illustration (which was chosen at random from a large collection) every effort is made to construct a package that will not alone assure the safe delivery of the goods, but also, if possible, improve on the shipper's package. For regardless of the great amount of care exercised by a steamship company to prevent damage to packages, there is bound to be some damage because packages are not adequate for the contents.

All materials in this department, such as metal strappings and glued paper taping, have the American-Hawaiian stamp on them, so that the packages which have been recoopered by the steamship company can be ascertained immediately. When any shortage or concealed damage is found during recoopering, and if it is deemed advisable, a sticker is attached to the package stating that a dock inventory is enclosed and that on arrival at its destination the case should be opened in the presence of an American-Hawaiian representative.

For each case that passes through this department there is a reconditioned form made out by the cooper. This form shows date, name of ship, marks, number, shipper, description (case, barrel, sack, etc.), commodity, reason for recoopering, such as, pilfered, board off, torn, crushed, re-sewn, stained, wet, (these being arranged so that they can be circled). The case is strapped and sealed, invoiced and signed by the cooper. Having such a form with items to be marked gives a definite record of what was done on all repaired cases and prevents any omission in the cooper's description. There is also a form for making out the above mentioned inventory.

Photographs Tell the Story

The slogan, "pictures tell the story," is certainly put to good use here. In the interest of good cargo handling, which means good packing and delivery of the freight in good condition to the consignee, this company has found that photographs serve as a fine means of showing the shipper his part in this important matter of good service. A photographer is stationed on the pier who takes pictures of any cargo poorly or indifferently packed, of goods in railroad cars arriving at the pier, showing poor bracing which has allowed the freight to fall down, of road trucks with ropes drawn too tight around paper cartons, crushing them, and numerous other examples of the wrong way to pack and ship freight. On the other hand, an exceptionally well packed case is also photographed as an example of the right way to do the job. Then prints of these photographs are sent to the shipper, with either a suggestion for improvement or congrat-

ulations on the good condition and method of packing. The shipper naturally appreciates the value of dealing with a company which so carefully watches the property of its customers.

Photographs are also of value for the company's use in sending information between loading and discharging ports. Here again the service to the shipper is improved because when such photographs are used with regard to commodities which require careful handling the risks of damage are minimized to the greatest possible degree. For example, when such cargo arrives at the pier to be loaded, pictures are taken to show the condition in which it arrives, method and means of loading and stowage in the ship. Copies of these pictures are forwarded ahead to the discharging port for guidance in discharging and delivering the cargo of this type. In addition, such pictures are forwarded to other ports which may in the future handle this type of cargo.

Carefully Prepared Loading Reports

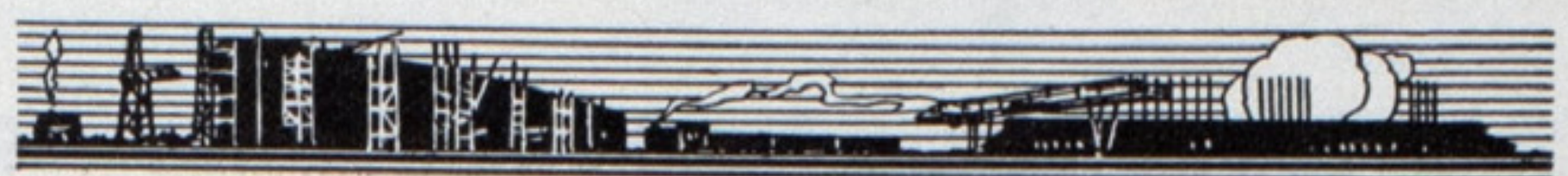
With each cargo that goes forward, a report is sent to the port of discharge describing the condition and stowage. The report may contain information that the cargo is hazardous therefore requires careful handling or it may state that there is nothing unusual about the cargo and that in turn, no special methods are necessary. In any event, the loading report is sent for every ship's cargo and in this way the possibility of overlooking the need for a loading report on more special cargo is eliminated.

The information for these letters is compiled by the ship's clerk whose duties are similar to those of the supercargoes of the Pacific coast. While the ship is being loaded or discharged, this clerk spends part of his time on the pier part on the ship's decks and part in the holds, and his function, as an employe of the company, is to coordinate the activities of the stevedore, the ship's officers and the terminal department. He notes, ahead of the time of loading, the particular cargo which is to go into the various compartments of the ship. He sees that odorous cargo is not stowed with foodstuffs; that light cargo is not stowed so high that it will crush itself; that commodities which have moisture absorbing qualities are stowed in dry well ventilated compartments and kept away from cargo that is liable to "sweat." These are but a few examples of his work. He sees to it that connecting carriers will be ready when needed and in many ways prevents numerous delays on the pier.

The American-Hawaiian line fully recognizes the importance of the checker, who in the end is responsible for an accurate record of condi-

(Continued on Page 38)

Useful Hints on Cargo Handling



THE value of research work is not generally realized, especially so when it is a matter of research in methods. Scientific studies of lubricating oils, structural materials, etc., is valued by far more business men than scientific studies in methods of selling, office management and materials handling.

In a business concern everything ultimately must be expressed in revenue, cost, and profit or loss. Scientific research in lubricating oils is valuable because it results in finding new types of oils which reduce maintenance and lubrication costs. Scientific research in methods of handling cargo also results in finding new methods and equipment which reduce costs. In each instance it is simply a matter of fact finding.

Research does not confine its efforts to development of new methods and equipment, but endeavors to obtain all possible information concerning that which others may be doing. No one organization has sufficient knowledge within itself to solve its problems to the best profit advantage of the company. An organization may have sufficient experienced men but the most experienced man can always learn something new from others.

Paper on Skid Platforms

PAPER packed on skid platforms is handled easily with hand lift trucks when floor conditions are satisfactory. In many cases, however, the floors, gangplanks and ramps are in poor condition and difficulty is experienced in moving the skids.

This is particularly true when the skids are being handled up the usual ramp from the floor of a terminal to a motor truck. The ramps are usually 15 feet long, are narrow and have approximately a 15-degree grade. The motive power for hauling the skids up the ramp is either a winch on the truck just back of the cab, or a terminal tractor. The cable from the tractor is run through a block on the truck, and then is attached to the rear of the lift truck. The lift truck with the load is steered up the ramp with difficulty because of this arrangement and frequently the lift truck and skid go off the ramp.

THIS page is being devoted to short items on all matters having to do with the more efficient turn-around of ships. These items are intended to be of a helpful nature.

We will welcome for this page brief descriptions, illustrated if possible, of any better or safer way of performing any function in cargo handling. Also, any questions submitted will be answered by the editor.

The most effective arrangement for loading skid paper on motor trucks is by means of an overhead hoist. If an attempt is made to hoist the skids with a strap or rope sling, the paper might be damaged or slip to an uneven position. This may be eliminated by placing iron sheets between the sling and the side of the load and also under the floor of the skid. Iron sheets are better than boards for this purpose because the surface is larger and not liable to bend as much as boards.

Use Mechanical Equipment

A STEVEDORE recently stated he did not believe in mechanical equipment. It was pointed out that whether or not it was profitable to use mechanical equipment was not a question of believing or not believing—but a question of fact. This stevedore's pier presents an excellent opportunity for obtaining large savings in cargo handling costs by using equipment and methods used elsewhere under the same conditions.

This stevedore's experience is limited. If he were wise, he would supplement his own experience with that of other stevedores and find ways to cut his costs.

Another source of information on cargo handling methods is equipment salesmen. Some of these men have a large store of knowledge which could be drawn upon, because for years they have studied cargo handling operations and sold equipment which has reduced costs by large sums.

Tests made in the intercoastal trade show that the proper temperature for refrigerated compartments

when candy is carried is between 55 and 60 degrees although for chocolates as high as 75 degrees is desired.

In the case of beer in kegs in the coastwise trade a temperature of 35 degrees to 40 degrees is maintained.

Using short lengths of dunnage is preferred in the decks when tractors and trailers or other types of equipment are used because when long dunnage is used the dunnage projects beyond the cargo and interferes with trucking operations. Furthermore, this projecting dunnage is an accident hazard.

Value of Technical Skill

THE practical man frequently does not realize the value of technical men in matters involving cargo handling. One reason for this is that some engineers and "efficiency" experts who have endeavored to improve cargo handling operations have been neither good engineers nor efficient experts.

Some have been men of unquestioned ability, but combined with a lack of knowledge of terminal operations they had a total lack of selling ability. Their approach to shipping company executives and to terminal operators was entirely wrong.

One engineer of high attainments in engineering usually begins the selling talk by telling the prospect how very inefficient his operations are. The result has been that this engineer has made comparatively little progress in applying his valuable knowledge and experience for the improvement of cargo handling.

How Flour Is Discharged

AT A SMALL northern port, flour is discharged from the ship and handled to the shed on the far side of the pier in an interesting manner. Platform slings are used for hoisting from the ship, twenty bags to the sling.

The sling is landed on a staging. From this point it is picked up by a caterpillar lumber yard crane and taken to the raised platform outside the shed. There the sling is landed on a skid platform which is handled into the shed with a hand lift truck. The terminal operator states that he can do fifty to sixty tons per hatch hour.

Up and Down the Great Lakes

Freight Traffic in 1933—Coal Shipments—Men
Discuss Terms of Employment—Propeller Club Meets

THE season of 1933 showed an increase of 97 per cent in traffic over that of 1932, through the American and Canadian canals at Sault Ste. Marie, Mich., and Ont. The United States canal was opened April 19 and closed Dec. 14 giving a navigation season of 240 days. The Canadian canal was opened April 20 and closed Dec. 1, a season of 226 days. The almost doubling of traffic in 1933, over that of 1932, was due to a large increase in iron ore shipments, from 3,607,119 tons in 1932, which was the lowest since 1891, to 22,226,025 tons, and lesser increases in all other commodities except wheat during 1933. The total traffic for 1933 showed an increase over 1932 of 19,827,001 tons. The decrease in wheat shipments during 1933 amounted to 8,509,394 bushels or 255,279 tons.

A new high record was established in 1933 for freight through the Welland ship canal with a total of 9,194,396 tons, exceeding the record made in 1932 by 656,936 tons, a gain of 7.7 per cent. All grains except flaxseed showed substantial decreases, aggregating 586,536 tons. Increases were recorded for the following commodities in tons: flour, 125,303; bituminous coal, 514,835; coke, 64,163; iron ore, 119,734; pig iron, 22,960; cement, brick and lime, 63,410; and merchandise including miscellaneous freight, 273,792.

Freight through the St. Lawrence canals during 1933 totaled 6,951,064 tons which was exceeded only by the traffic of 1927 and 1928. Due to early ice the canals closed Dec. 5, ten days sooner than in 1932. In 1926 the canals were closed on Dec. 5 but with these two exceptions, the canals have remained open for the past twenty years until Dec. 11 to 15. Grains shipments were considerably lighter than in 1932, but increases in coal, pulpwood, ore, gasoline, oils, paper, merchandise and other commodities made a net in-

Bulk Cargo Movement

Movement of bulk cargo on the Great Lakes during 1933 exceeded the similar movement during 1932 by 29,700,415 net tons, an increase of 71.3 per cent over the year 1932. Of this increase iron ore accounted for 20,222,623 net tons, or 68.1 per cent of the total increase. Substantial increases in coal amounting to 6,919,285 net tons and in stone amounting to 2,735,789 net tons were also recorded. The only bulk commodity which showed a decrease was grain, which fell off 177,282 net tons.

The total bulk movement during 1933 was only 2,775,689 net tons less than the total movement for the year 1931. A comparison of the total movement of various bulk commodities on the Great Lakes during the past eleven years is given in the accompanying table.

At the peak of operation, on Sept. 15, 1933, no less than 217 lake bulk freighters out of a total of 330 were in commission, representing 68.44 per cent of the total carrying capacity of the fleet.

A continued improvement in the bulk cargo movement is now anticipated for the year 1934.

crease of 257,264 tons.

An exceptionally heavy movement of freight took place during 1933 between Great Lakes ports and European, Canadian Atlantic, United States Atlantic ports, Newfoundland and Cuba, which passed through the

St. Lawrence canal without breaking bulk.

Freight to United States lake ports included 76 cargoes of 106,455 tons, largely wood pulp, from European ports; one cargo of 1500 tons from Newfoundland; three cargoes of 4800 tons of sugar from Cuba; 20 cargoes of 19,148 tons from the United States Atlantic ports and 34 cargoes of 49,664 tons, mostly pulpwood and wood pulp, from Canadian Atlantic ports. This made a total of 189 cargoes of 364,132 tons of freight from ocean ports using the St. Lawrence canals and going to United States lake ports.

The outbound freight amounted to 120 cargoes of 158,737 tons, con-

(Continued on Page 38)

Coal Shipments on Lakes

Coal shipments from Lake Erie ports for the entire season of 1933 to Jan. 1, 1934 amounted to 31,351,353 net tons as compared with 24,563,391 net tons in 1932 and 30,415,291 net tons during the year 1931. It is necessary to go back to the year 1930 to show a greater movement, which in that year totalled 36,839,923 tons.

The total movement of bunker coal for the year 1933 amounted to 982,040 net tons compared with 609,820, 972,114 and 1,320,553 net tons, respectively for the years 1932, 1931 and 1930.

The total movement of bituminous coal, cargo and bunker for the year 1933 amounted to 32,237,729 net tons as compared with 25,173,211 net tons in 1932, 31,387,405 net tons in 1931 and 38,160,476 net tons in 1930. Anthracite coal also moved in larger quantity during 1933, the amount being 425,301 net tons, compared with 293,978 net tons in 1932. The cargo coal movements given in the table on this page include anthracite coal.

Bulk Cargo Movement---1933

Shipments on the Great Lakes for Last Year Compared with Ten Preceding Years

Year	Iron ore Gross tons	Coal net tons	Grain, various kinds net tons	Stone net tons	Total net tons
1933	21,623,898	31,776,654	8,713,127	6,664,629	71,378,176
1932	3,567,985	24,857,369	8,890,409	3,928,840	41,672,761
1931	23,467,786	31,176,359	9,479,640	7,208,946	74,148,865
1930	46,582,982	38,072,060	9,851,229	12,432,628	112,528,857
1929	65,204,600	39,254,578	10,021,099	16,269,612	138,574,441
1928	53,980,874	34,823,002	16,372,116	15,677,551	127,331,248
1927	51,107,136	34,794,291	14,692,536	14,033,376	120,760,195
1926	58,537,855	31,011,544	12,087,316	12,628,244	121,289,502
1925	54,081,298	28,127,359	13,320,346	11,351,948	113,370,707
1924	42,623,572	25,860,515	15,222,787	9,225,624	98,047,327
1923	59,036,704	33,137,028	11,850,446	9,920,422	121,029,004

Propeller Club Opposes Coast Guard Merger

A meeting of the Propeller club, port of Cleveland, was held at the Carter hotel, Cleveland, on Jan. 22 with an attendance of 90 members and guests. A. T. Wood, president of the club, presided. R. C. Allen, formerly Michigan state geologist and now president of the Lake Superior Iron association and first vice president of Oglebay, Norton & Co., Cleveland was the guest speaker on the subject of iron ore from an international point of view.

The following resolution approved by the board of governors Dec. 28 was carried unanimously at the meeting:

"Under the provisions Rush-Bagot treaty signed with Canada April 20, 1817, the naval forces on the Great Lakes are restricted to three vessels of 100 tons. Coast guard vessels do not come under the terms of this agreement and are not restricted in size or number.

"However, the transfer of the coast guard to the navy, under a strict interpretation of the treaty would seriously hamper the services of the coast guard on the Great Lakes.

"The functions of the navy and the coast guard are entirely dissimilar. Naval officers do not lend themselves to the requirements of the coast guard services as their training has been foreign to the work required.

"It is resolved therefore that the Propeller club, port of Cleveland, go on record as being opposed to the transfer of the coast guard to the navy and that copies of this resolution be sent to the President, of the United States, Secretary of the Treasury, and the Secretary of the Navy."

William P. Schaufele Dies

William P. Schaufele, a director of the Lake Carriers' association and for many years prominently identified with the vessel operations of the M. A. Hanna Co., Cleveland, died suddenly, of pneumonia, at his home in Lakewood, O., Dec. 29. Mr. Schaufele was widely known among vessel operators on the Great Lakes and had been associated with the vessel department of the M. A. Hanna Co. for the past 24 years. He entered the employ of this company in 1905 after having served as superintendent of the carferry department of the Wheeling and Lake Erie railroad. At the time of his death he was assistant secretary of the vessel companies of M. A. Hanna Co.

He was born in Cleveland in 1869. He was a member of the welfare committee of the Lake Carriers' association and was also an alternate member of the executive committee

of that organization. When the Propeller club of the port of Cleveland was organized he was elected a member of the board of governors. Among his other affiliations were memberships in the Woodward lodge of Masons and in the Westwood country club, Lakewood.



Funeral services were held on Jan. 2 at St. John's Episcopal church, Cleveland, and burial was in Lakewood cemetery. The honorary pall bearers were: John J. Boland and Frank P. Ranahan of Buffalo; George A. Marr, A. H. Ferbert, John Kelly, C. R. Kells, J. Lee Wallace, R. Parry-Jones, Frederick J. Leckie, W. E. Newberry, William Bauer and H. M. Griggs, all of Cleveland.

December Lake Levels

The United States Lake survey reports the following monthly mean stages of the Great Lakes for the month of December, 1933, determined from readings of staff gages.

Lakes	Feet above mean sea level
Superior	602.48
Michigan-Huron	577.57
Erie	570.12
Ontario	243.37

Lake Superior was 0.33 foot lower than in November and it was 0.23 foot above the December stage of a year ago.

Lakes Michigan-Huron were 0.14 foot lower than in November and they were 0.10 foot below the December stage of a year ago.

Lake Erie was 0.06 foot lower than in November and it was 0.26 foot below the December stage of a year ago.

Lake Ontario was 0.06 foot lower than in November and was 0.93 foot below December a year ago.

Delegates from Lake Ships Meet in Cleveland

Representatives of the men employed in the deck, engine and steward departments on Great Lakes vessels, belonging to members of the Lake Carriers' association, met in Cleveland Jan. 8 to 11 to discuss terms of employment on the basis of collective bargaining. The employees' delegates had been selected by secret ballot on the boats of the association some two months before. The delegates elected were regular employees of the vessels, the crews of which they represented at the convention.

The Lake Carriers' association did not participate in the program of the conventions at which the various classes elected their representative and determined on conditions of work and wages which they will, at a later date, formally submit to and discuss with the association.

The men on board ship were divided into five classes, engineers, mates, deck crews, engine crews, and steward crews. Each class selected at its convention of delegates in Cleveland, the representatives which will meet with an equal number of representatives of the Lake Carriers' association to discuss terms of employment.

The principal recommendations of the convention representing deck crews were:

1. Three watch system and an 8-hour day.

2. A minimum wage scale per month for 1934, wheelsman, \$125; watchman, \$120; deck watch, \$105; deck hand, \$80; and boatswain, \$140. The present scale in these categories, with the exception of boatswain which does not now exist, is wheelsman, \$93; watchman, \$85.80; deck watchman, \$78; and deck hand, \$66.

3. Time and a half for overtime on week days and double time for overtime on Sundays and holidays, to be paid either in cash or time off.

Arrangements for the meetings between representatives of the Lake Carriers' association and representatives of the various classes of employees will be made subsequent to the public hearing on the general shipping code which is to be held in Washington, Jan. 31.

In the January MARINE REVIEW it was reported that the United States engineer office, Vicksburg, Miss., would issue plans and specifications for the construction of one self-propelled channel and snag boat with molded length of 170 feet, molded beam 38 feet, depth 7 feet, 6 inches.

Bids for the construction of this vessel were called for Jan. 23. The results of the bids were not available as this is written.

New Record in Traffic at Port of Houston

Despite worldwide unfavorable economic conditions in 1933 the port of Houston has established a new high record in tonnage handled, according to the annual report of Port Director J. Russell Wait for last year.

The 1933 total was 16,929,771 tons as compared to 12,714,432 tons in 1932 and 14,991,046 in the peak year of 1930. New records were also established in the export movement of cotton totalling 2,720,827 square bales and in the arrival and departures of vessels, aggregating 4965.

The report pointed out that the growth of general coastwise tonnage at Houston during 1933 had much to do with the establishment of the new port records. In 1930 a total of 574,740 tons of this class of trade was handled as compared with 852,690 tons during the past year.

The report reflects a decided economic improvement in the territory served by the port of Houston and also demonstrates the exceptional oil development taking place in this section. A large portion of the port's tonnage was used directly and indirectly by the petroleum industry.

Herbert T. Herr Dies

Herbert Thacher Herr, 57, vice president of the Westinghouse Electric & Mfg. Co., and a noted engineer, died Dec. 19 at his home in Philadelphia. Mr. Herr's death followed an illness of about five months.

He was born in Denver, in 1876, where he married Miss Irene Vancourt in 1896. He leaves his widow, and two children.

Widely known in engineering circles, Mr. Herr was the inventor of locomotive air brake equipment, improvements in turbines, oil and gas engines, and remote control for steam turbines, such as are used in electrically propelled warships.

Mr. Herr was a member, among other societies, of the American Society of Naval Engineers, and the Society of Naval Architects and Marine Engineers.

(Continued from Page 36)

sisting of 56 cargoes of 82,163 tons from Canadian lake ports and 64 cargoes of 76,574 tons from United States lake ports. The United States freight included 47 cargoes of 64,223 tons to European ports; two cargoes of 1423 tons to Newfoundland; 14 cargoes of 9203 tons to United States Atlantic ports; and one cargo of 1625 tons to a Canadian Atlantic port.

It is quite possible that many of these vessels took on additional freight after passing through the St. Lawrence canals which normally

allow a draft of only 14 feet, but, on account of exceptionally low water during the past season, restricted the draft still more, especially toward the end of the season when the maximum draft was reduced 3 inches on Aug. 24, Sept. 15, Oct. 14, Nov. 2; and to 12½ feet on Nov. 25 until the closing of the St. Lawrence canals on Dec. 5.

J. F. Paige Joins Bethlehem

J. F. Paige, who for the last four years has been a member of the firm of Paige & Strachan, consulting marine engineers, New York, on Jan. 2 joined the Bethlehem Shipbuilding Corp. organization at the Fore River plant, Quincy, Mass., to take charge of the machine shops.

In going to Fore River, Mr. Paige is returning to familiar surroundings. From 1903 to 1916 he was connected with the Fore River Shipbuilding Corp. and the Fore River plant of the Bethlehem Shipbuilding Corp. In those years he served as foreman, superintendent of machinery, assistant chief engineer and assistant general superintendent in charge of all classes of merchant and naval work.

Resigning his position with the Bethlehem Shipbuilding Corp. in 1917, he became general manager of the Port Arthur Shipbuilding Co., Port Arthur, Ont., and continued in that position until December, 1919, when he became operating manager of the Halifax Ship Yards Ltd., Halifax, N. S. In 1924 he became manager of the operating department of the Emergency Fleet Corp. at New Orleans, and in 1925 was transferred to Washington, later becoming assistant to the vice president of operations. He joined the Black Diamond Steamship Corp., New York, in 1926 as operating manager.



J. F. Paige

Ore and Coal Executive, Robert H. Burns Dies

Robert H. Burns, 47, assistant manager of the Ore & Coal exchange, died Jan. 1 at St. Alexis hospital, Cleveland. Funeral services, held Jan. 4, were attended by prominent shipping and railroad men.

The Ore and Coal exchange, of which H. M. Griggs is manager, performs the important function of coordinating the industrial and transportation facilities of coal from the mines of Ohio and the South and ore from the Lake Superior region. As assistant manager, Mr. Burns, through his genial personality and thorough familiarity with all the details concerned, did much to make things move smoothly with the result that the organization is of great value to both railroads and shipping.

During his 15 years connection with the Ore & Coal exchange, since its establishment in 1918, he established a reputation for having at his finger tips the widest detailed information for vessel operators and railroad men. He did not need to depend on or refer to schedules to give the time of arrival at destination of consignments of ore and coal. In addition to this thorough grasp of the details of operation his personality was such that he was widely known and well liked.

Mr. Burns was born in Elkhart, Ind. He first came to Cleveland to enter the employ of the New York Central Railroad.

One of the organizers of the Propeller club of the port of Cleveland, he was elected its treasurer. He was a member of the Sleepy Hollow Country club. He is survived by his widow.

(Continued from Page 34)

tion of all cargo on receipt and delivery. The line has a well bound book of instructions with which each checker is required to be thoroughly familiar. This book leaves nothing to guess work, as it indicates specific actions to be followed with reference to each condition. Furthermore it states that the company expects each checker to be honest not only with the company, but also with the shipper, and gives as a slogan "be sure you are right, then go ahead."

New York shipping men were unanimous in their approval of Mayor LaGuardia's reappointment of John McKenzie as commissioner of docks. He is especially fitted for the office because of his thorough technical knowledge of the complex operations of the department. He had served for 28 years as a civil service employe through all grades up to the position of chief clerk, when in May 1931 he was appointed dock commissioner by Mayor Walker.

Personal Sketches of Marine Men

Sidney E. Smith, Marine Superintendent, Boland & Cornelius

By Frances Dowdell

THOROUGHLY grounded in building and operating marine machinery he brings to engineering problems sound judgment based on experience.

HE QUICKLY grasps the principles underlying increased efficiency of new engineering developments and does not hesitate to adopt them.

CAREFUL attention to details to make certain of successful operation, leaving nothing to chance, is one of his outstanding characteristics.



THE career of Sidney E. Smith, marine superintendent for Boland & Cornelius, manager of the American Steamship Co., Buffalo, will always be associated with planning and supervising the conversion of four large bulk cargo carriers to modern self-unloading vessels. These four vessels are the DIAMOND ALKALI, THUNDER BAY QUARRIES, and DOW CHEMICAL, completed in April, 1932, and the J. F. SCHOELLKOPF JR., completed in August 1933. Conversion of all four vessels was carried out at the Lorain, O., plant of the American Ship Building Co., Cleveland.

The extraordinary success of these vessels in service is an outstanding example of the value of initiative and the application of sound engineering principles as aids to business, and particularly so in difficult times. After conversion, independent of unloading rigs on docks, they have found steady and profitable employment. Because of their unique qualifications, their owner was able to keep them in operation all through a period when commercial enterprise on the Great Lakes was at an extremely low point.

Sidney Smith entered the employ of Boland & Cornelius 14 years ago as first assistant engineer on the steamship FLAG then operated in ocean service. He was promoted to chief engineer on the steamer WILLIAM P. PALMER, which also operated in ocean trade for a number of years and was then brought back to the Great Lakes.

It was in connection with the PALMER that Mr. Smith demonstrated his originality and natural bent as a marine engineer. The PALMER was found to be using more fuel than seemed necessary, and Mr. Smith suggested to the owner that the fuel bill could be cut in half if he be given a free hand to work out the problem in his own way. This permission was given and after a thorough machinery overhauling during the winter, the performance of the PALMER, the following season, lived up to the predictions he had made and established his reputation as an engineer who knew what he was about.

The winter following the reconstruction of the PALMER's engines, Boland & Cornelius established facilities for repairing vessels of its fleet and selected Mr. Smith to

take charge as marine superintendent.

In the following years some 20 vessels were built in England for the Eastern Steamship Co., which was managed by Boland & Cornelius. Mr. Smith was also placed in charge of these vessels, operating between Duluth, Fort William, and Montreal, in the grain trade. In locking these ships through the old Welland canal, in order not to lose valuable time, his presence was required along the canal day and night and it was not unusual for him to go 50 or even 60 hours with little or no sleep. His resourcefulness and devotion to duty made him indispensable to the management.

Sidney Smith was born in Detroit and first started working as an apprentice in the old Detroit Shipbuilding Co. On completing his apprenticeship, he went to work for the Great Lakes Engineering Works. After a number of years in the shipyard he went to sea and was licensed in the different grades, including chief engineer in steam and diesel without limit as to size of vessel or trade. He served as chief engineer both at sea and on the Great Lakes.

His subsequent success is attributed in a large measure to his great natural ability as an engineer. He has a special aptitude for quickly establishing the cause of trouble and in arriving at a simple and direct way of overcoming the difficulty. He has the habit of tackling the nearest problem with characteristic energy and takes a lively zest in its solution. He is not disturbed or discomfited by the number of tasks confronting him. Quickly and unhesitatingly he takes each in turn and so plans his efforts that they are all accomplished within the time available. His interest in engineering and his temperament make work a game which he thoroughly enjoys.

His fine personal qualities and his ability have now brought him recognition all over the Great Lakes and even beyond their confines. He was recently elected national vice president of the Propeller club of the United States. He holds an honorary life membership in the Ship Masters' association of the Great Lakes. He is also an honorary life member of the Marine Engineers' Benevolent association and a member of the Society of Naval Architects and Marine Engineers.

European Shipping

(Continued from Page 11)

ernization of old ones, and a good deal of money has been spent in the various engineering works to bring the machinery of existing ships up-to-date and to improve their economy. In most cases this has been done by the addition of superheaters, a comparatively inexpensive job, which has been most successful, while in others low pressure turbines or turbo-electric gear has been added to the exhaust of the low pressure, cylinder, or poppet valves have been substituted for the older and less efficient pattern.

Many well known steamers have been treated in this way with complete success as far as their fuel economy is concerned, but it is, of course, necessary to go further than that and to make a careful balance of this fuel economy and the cost of the conversion, influencing as it does the whole life of the ship in the form of "overhead." Naturally the expectation of life is the most important factor in this, especially so when the owners try the experiment, that has already attracted attention when tried by American and Dutch lines of altering the hull form.

The Blue Star line is altering the hull of the DORIC STAR, for the London-New Zealand service, cutting off the old bow and replacing it by another on the Maier principle. Such a job is bound to be an expensive one, especially with British shipbuilding labor still insisting on strict lines of demarcation, and runs up overhead charges spread over the entire life of the ship. This overhead must be met by a corresponding substantial increased economy in running expense.

Shipbuilding labor is holding up another plan by which builders and owners are helping to turn out a better and more economical cargo carrier. Electric welding in place of riveting promises well in many ways. Admittedly it is now dearer, that is natural in the early days of any process, but it is stronger and permits a 5 per cent increase in deadweight. If the builders can contrive to get the cost down until it is less than this 5 per cent more than riveting it is obvious that they will be producing a better and more efficient ship. But the Boilermakers' society, which is the riveters' union, is trying to insist that only former riveters shall be employed in welding which would, of course, keep it tied to the old system and prevent it making any real progress.

Problem of Obsolete Tonnage

With new and much more efficient cargo carriers being commissioned the question naturally arises as to what is to be done with the older tonnage thus made obsolete. In the past it has nearly always been sold

abroad despite the obvious fact that it will be used under the Greek, Italian, Spanish or Japanese flag to compete cheaply with our own tramps. There have long been protests against this but the shipping men who conclude the sale naturally have to look after their shareholders' interests. It is most unlikely that the best price obtainable to run will be anything like the value at which the ship stands in her owners' books; it is very certain that the scrapping price will not be. But the price offered by British shipbreakers for steam tonnage has steadily risen from 6 shillings per gross ton to over a pound and it is still rising. Most British economists hope that this rising price will in itself check the foreign market, further state aid in the shape of a scrapping bonus like the German and Japanese is not desirable.

So much for the running and construction of cargo shipping: the ordinary passenger business is still depressed and is likely to remain so. The extent of depression, of course, varies according to the route, and the Australian and Indian services which have their terminals in London have been affected far less than the Western ocean services from Southampton, Liverpool and elsewhere, which rely largely on the holiday-maker or the man with big business to transact. But even in the most regular lines it will be a long time before they attain anything like their normal proportions and in the meantime the passenger companies are doing the best that they can out of yachting cruises.

Importance of Cruises

This side of the shipping business has expanded mightily during the last few years, especially since the companies gave up the habit of limiting their appeals to the rich client. Formerly it was only the special cruising yachts or the very fine liners which were put on this service during the off season; nowadays cabin and third tourist ships carry a large number of passengers for their summer holidays, especially those which arrange short cruises of 13 or 20 days duration suitable for the office man who has a fortnight or three weeks holiday only and who cannot afford to spend very much more than a pound or thirty shillings per day on it. The lines do not make a fortune out of this business but it keeps their ships employed and yields a reasonable return. It is significant that the London river has proved by far the most convenient starting place for cruises of this sort and has done a lot of business in them, which seems likely to increase.

A very interesting outcrop of the cruising business is the increasing number of holiday-makers who like to take a trip in a liner on her regular service. Any number much prefer this to a yachting cruise. They naturally choose the sections of the

voyage when the ship is comparatively empty with a proportion of her long-distance passengers choosing the overland route. With arrangements between the companies to interchange return tickets the passenger in search of sunshine, particularly in the winter months, has an enormous variety put before him, and any number of liners are finding this a useful and profitable sideline the possibilities of which are only now beginning to be explored.

More Employment in Sight

With these elements at work there is very little doubt that there will be far more British ships at sea this year, and far more officers and men employed navigating them, repairing them, and handling their cargoes in port. But it is obvious that many of the ships now laid up will never be run in competition with up-to-date vessels in the circumstances ruling today, and it is a very good thing for everybody concerned that the price of ships for scrap has gone up to a reasonable level.

The point to be settled is whether the increased business brought about through Britain being forced into the state aid policy will be worth the candle. The general opinion is that it will be for a short period, over the present critical time, and giving a lever for bargaining with other powers, but that it will prove advisable to drop it at the first opportunity and to go back to the policy which Britain has been following for eighty odd years. But that can only be proved by experience.

L. B. Nutting Dies

L. B. Nutting, 62, president of the Foster-Wheeler Corp. New York, manufacturer of power plant equipment, died Jan. 12 at his home in that city. Born in Lansing, Mich., July 26, 1871 and spending his early years in the Middlewest, he became associated in 1893 with Henry R. Worthington, founder of the Worthington Pump & Machinery Co., going to Hawaii to do research work.

In 1900 he joined R. D. Wood & Co., Philadelphia and three years later was appointed sales manager and a director in the Power Specialty Co., New York. Later he became president, and when, in 1927, it was merged with the Wheeler Condenser & Engineering Co. into the Foster Wheeler Corp. he continued in office as president.

He was a specialist in ship boiler construction and had long been active as a director of the Foster Marine Boiler Co. During the World war, Mr. Nutting was instrumental in the development of a standardized boiler

He was a member of American Society of Naval Architects and Marine Engineers and of various other technical and social organizations.

Marine Review

Reg.
U.S.
Pat.
Off.

*The National Publication Covering the Business of
Transportation by Water*



S. S. President Hoover off Oahu, Hawaii

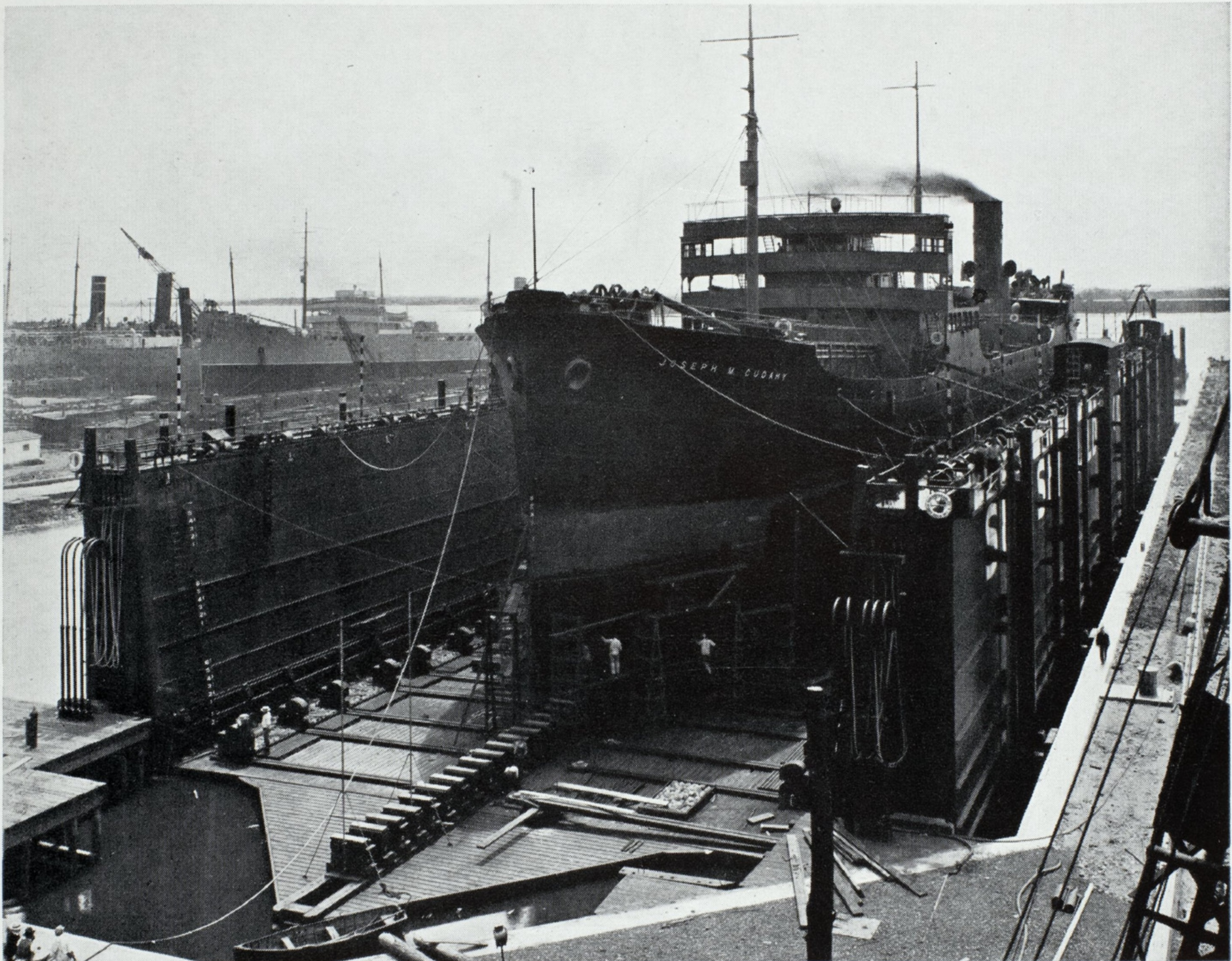
February, 1934

MARINE REPAIRS

»

»

»



Builders of the
**SUN DOXFORD
OPPOSED PISTON
DIESEL OIL ENGINE**

Two floating dry docks of 11,000 tons capacity each, every facility for hull and machinery repairs, including diesel or steam engine, together with a highly trained staff of engineers and workmen is your assurance of efficiency and dispatch when your marine repairs are made by the Sun Shipbuilding & Dry Dock Co.

SUN SHIPBUILDING & DRY DOCK CO.
CHESTER, PA.

New York Office: 25 Broadway

... Another NEW AMERICAN SHIP SERVICE

*New equipment checks safety valves
at working steam pressures*

THIS new steam testing compressor enables us to check the operation of safety valves, throttle valves, stop valves, check valves and many other steam specialties *under actual steam operating conditions*. It provides us with steam for "popping off" safety valves at any pressure—up to 500 pounds—with but 2 or 3 pounds drop in pressure. It permits us to check the proper adjustment of steam valves not only on marine engines and boilers but also on similar industrial equipment, especially for power and light plants.

Engineers know the annoyance as well as the loss in time and money which comes when repaired valves, adjusted by hydraulic test, fail under working steam pressure. With this new apparatus, American Ship assures you adjustment for *your* operating conditions.

This is what happens when you send valves to us for repairs: Skilled and experienced workmen carefully

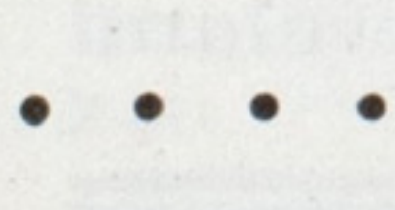
grind in the valve seats and provide any necessary new parts; then the valve is adjusted at *your* working steam pressure. In the same way, all new American Ship valves are tested to fit *your* needs.

Valves from all over the Great Lakes are being sent to us at Cleveland for repairs and checking, although our new equipment has been installed only a few weeks. American Ship obviously is offering another service which steam users need and want. May we serve you?



The AMERICAN SHIP BUILDING CO.

Main Office: Foot of West 54th Street, Cleveland, Ohio



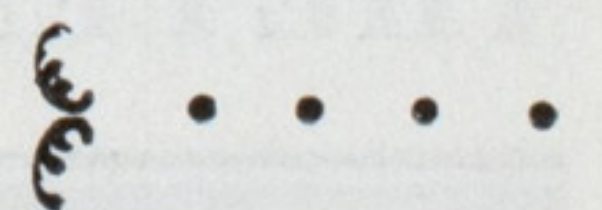
CLEVELAND
American Ship
Building Co.

LORAIN
American Ship
Building Co.

BUFFALO
Buffalo Dry Dock
Company

SOUTH CHICAGO
Chicago Ship
Building Co.

SUPERIOR
Superior Ship-
building Co.





Highly Desirable Office Space Available

THE PENTON BUILDING

● In this modern, nine story building, single offices may be had on terms as low as \$25 a month. Larger units of space now are offered on such a favorable basis that your rent here will be considerably lower than the average for similar facilities and conveniences.

● The location is ideal. The public square is but three blocks away. The public auditorium, stadium, city and county administration buildings all are within two or three blocks. Many of the offices have perfect view over the lake.

● Before you move your present Cleveland office, or establish a new office here let us discuss your requirements with you. On request, we'll gladly send folder showing floor plan and giving other information you will wish to have. Write us.

THE PENTON BUILDING COMPANY-Lakeside at West Third, Cleveland

176-X

BOOKS

A selected list for the man interested in Marine Subjects

ABELL—Stability and Seaworthiness of Ships \$5.00

Gives consideration to those practical problems affecting a ship's stability and seaworthiness which the shipmaster may be called upon to deal with or consider in the ordinary routine of his calling.

ADAMS—Modern Diesel Engine Practice \$6.00

A complete text book on every phase of diesel engineering, construction, and installation.

BEASLEY—Freighters of Fortune \$3.50

A quick moving tale of adventure of fighting and of the first attempts at crude commerce on the Great Lakes all of which helped to lay the foundations for what is today one of the richest and most powerful sections of the world.

CARR—Cost of Shipbuilding \$3.00

This book provides a short method in calculating the cost of the many different types of merchant vessels and to eliminate the practically obsolete system of figuring this class of work.

CHALKLEY—Diesel Engines for Land and Marine Work \$8.00

A discussion of the theory, operation and construction of the diesel engine as used in marine and land work.

CUTHBERTSON—Freshwater \$7.50

This book is designed to be of interest to all who want to know all they can about the

ships and those who want a general story of Great Lakes history with a glimpse at men, ships and events. Illustrated with a series of excellent pictures showing early types of lake craft, etc.

DOBBS—Canals and Inland Waterways \$2.25

This book is of especial value to students interested in the subject of canals and waterways and to those who for one reason or another desire enlightenment on the subject

FORD—Practical Marine Diesel Engineering \$7.00

Deals with the construction and operation of the marine diesel engine from the view point of the practical engineer.

HARDY—Bulk Cargoes \$6.00

A clear and important discussion on how bulk cargoes are carried and in what ways the nature of the bulk cargo has affected the design and construction of vessels.

MACELWEE—Ports and Terminal Facilities \$5.00

A thorough and detailed discussion of marine terminal facilities. Traffic conditions are analyzed and studied in their relation to port facilities for best service.

MANNING—Manual of Naval Architecture \$2.75

Prepared primarily for operating officers, students and all those who wish to become familiar with the subject of naval architecture

without any extensive previous knowledge of it.

MORRELL—Oil Tankers \$4.00

A complete and authoritative treatise on oil carrying vessels, the handling of bulk oil and the transportation of bulk oil by water. Covers the subjects of modern design, construction, repairs and operation with respect to hull, cargo system and machinery.

PERRY—Ship Management and Operation \$4.15

This book is the first to cover the subject and is based upon original research. Latest methods of organization and operation are described and illustrated. Organization charts showing the lines of advancement in various departments and fold-in drawings of main decks of modern ships are included.

ROSBLOOM—Diesel Reference Guide \$4.00

A book for reference purposes and instruction on modern diesel engineering, land, marine, locomotive, aero-service, automotive and portable duties. Includes a directory of manufacturers of diesel engines and products essential in diesel service and is profusely illustrated, containing tables, formulae, etc.

WATTS—Hints to up-to-date Navigators \$1.75

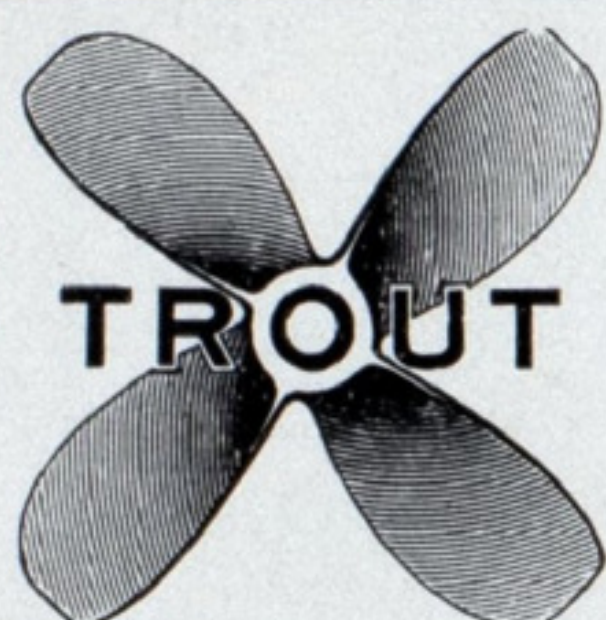
This little book would appear to be very useful to the junior officer who is taking his profession seriously and desires to adopt every means to advance his knowledge.

THE PENTON PUBLISHING COMPANY

1213 W. 3rd St.

Book Department

Cleveland, Ohio
224-M



E. H. READING PROPELLER WHEELS

Machinery Repairs

226 Ohio St.

BUFFALO, N. Y.

'Phone Washington 5361

John J. Boland

Adam E. Cornelius

BOLAND & CORNELIUS

VESSEL OWNERS AND BROKERS

Marine Insurance Agents

Marine Trust Building BUFFALO, N. Y.

Star Brass Mfg. Co.

104-114 E. Dedham St., Boston, Mass.

MANUFACTURERS OF

Accurate "Non-corrosive" Pressure and Recording
Gauges, Revolution Counters, Marine Clocks.

Dead Weight Gage Testers.

Marine, Safety and Relief Valves for all pressures.

Marine Whistles and Sirens.

Extra Heavy Renewable Globe, Angle and Check
Valves.

Star Outside Spring Steam Engine Indicators.

HIGH GRADE THROUGHOUT
SPECIFY AND ORDER THE BEST.

Branches: CHICAGO PITTSBURGH NEW YORK

Classified

U. S. ENGINEER OFFICE, P. O. BOX 667, Vicksburg, Mississippi.—Sealed bids will be received at this office until 11 o'clock a.m., January 23, 1934, and then opened, for constructing and delivering afloat at Vicksburg, Mississippi, one self-propelled Channel and Snag Boat complete.

WANTED. STEAM TUG BETWEEN 80 AND 100 feet in length with draft 11 to 12 feet fore and aft about 18 inches by 36 inches, stroke about 24 inches, steam pressure not less than 150 lbs. Must be in good condition. Address Box 439, MARINE REVIEW, Penton Building, Cleveland, Ohio.



TWO GREAT FLEETS

now offer an unexcelled Freight and Passenger Service to Europe via Bremen or Hamburg.



Fast Freight Services To Bremen and Hamburg, also via Antwerp from outports . . . including all shipping lanes from Montreal to Puerto Mexico and from all North Pacific ports. Special low rates in transshipments.

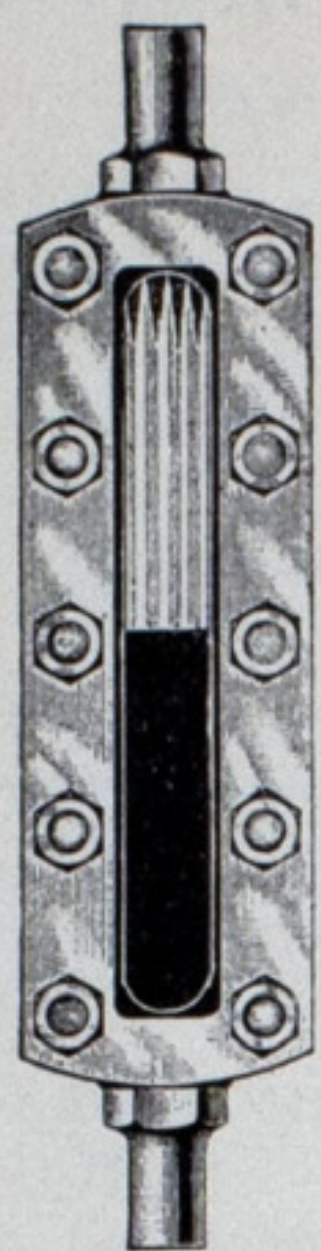
Passenger Services New York to Cherbourg, Southampton, Bremen and Hamburg. New York to Galway, Cobh, Cherbourg, Bremen or Hamburg. North Pacific Ports to Antwerp, Bremen and Hamburg via Panama Canal.

Pleasure Cruises Around the World, to the West Indies, to the Northern Wonderlands and Russia, the Mediterranean, Around Africa.

HAMBURG-AMERICAN LINE NORTH GERMAN LLOYD

New York, N. Y.

— or Local Agents



REFLEX WATER GAGES

Used on all types of boilers by all the Principal Navies of the world

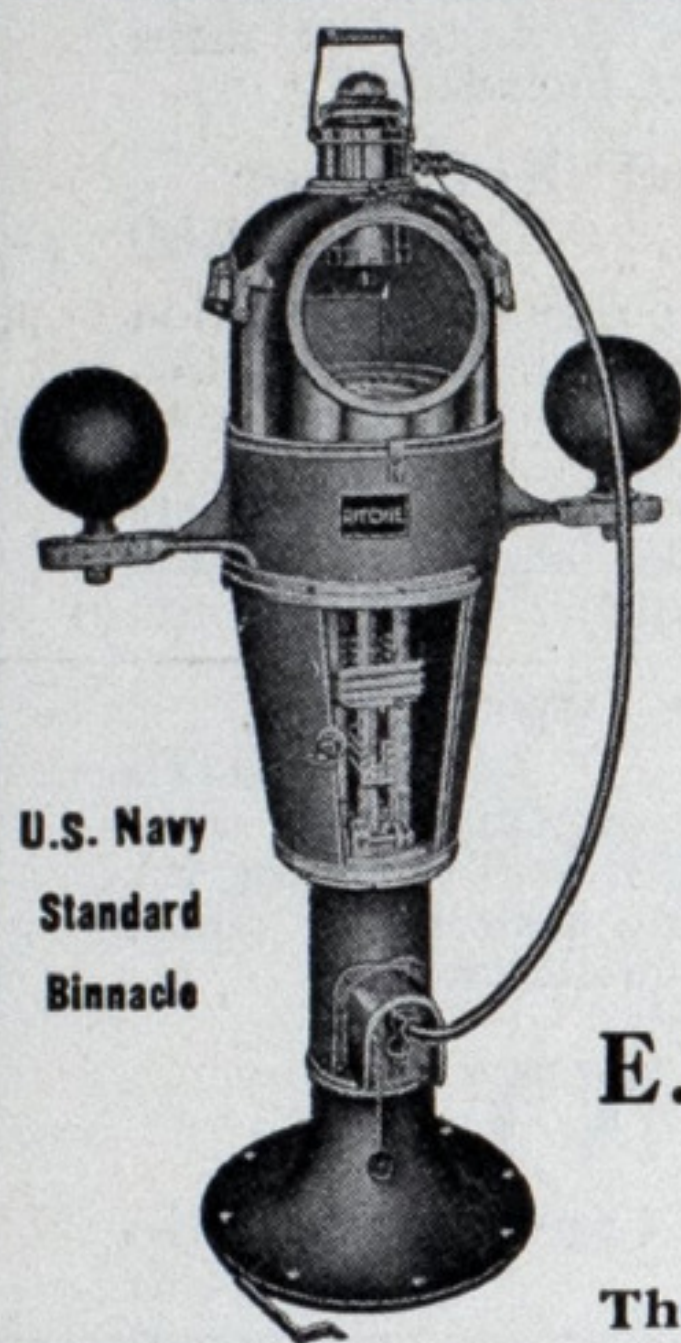
"The Water Shows Black"

ADVANTAGES: Quick and reliable observation of the water level. Safe, sure and durable at high pressure. Not affected by cold air drafts. Most effective protection against injuries to boilers and workmen. Easily applied to all types of gage glass fittings.

When filled with WATER the Reflex Gage always appears **BLACK**. When empty it instantly shows **WHITE**. No mistake possible. This feature alone is worth many times the cost of the Reflex.

Send for catalog of Water Gage Apparatus

MANUFACTURED BY THE
**JERGUSON
GAGE & VALVE CO.**
WINTER HILL, SOMERVILLE, MASS.



THE RITCHIE LIQUID COMPASS

The Standard Liquid Compass the world over.

Used Exclusively in U. S. Navy for over 40 years.

Over 65,000 on Merchant Vessels in all parts of the world.

Made in all sizes 2 to 12" dia.

Magnets for adjusting Purposes.

E. S. RITCHIE & SONS
Brookline, Mass., U. S. A.

Agents for the Great Lakes,
The Upson-Walton Company, Cleveland, Ohio

PLAN NOW

The marine industry is of tremendous importance as a market for your products and service.

Marine Review can assist you in securing better sales returns. It is subscribed for by more steamship executives and ship operating officers than any other marine publication. Further, Marine Review gives you complete coverage of the shipyards as virtually every one of them subscribe for one or more copies.

Be sure to include Marine Review in your sales and advertising plans to reach the really important men who say yes, and O. K. requisitions in the marine trade.

INDEX To ADVERTISERS

American Shipbuilding Co. 3

Bethlehem Shipbuilding Corp., Ltd.Back Cover
Boland & Cornelius 41

Hamburg-American Lines 41

Jerguson Gage & Valve Co. 42

Newport News Shipbuilding & Dry Dock Co.....
.....Inside Back Cover

Reading, E. H. 41
Ritchie, E. S., & Sons..... 42

Star Brass Mfg. Co. 41
Sun Shipbuilding & Dry Dock Co.....
.....Inside Front Cover

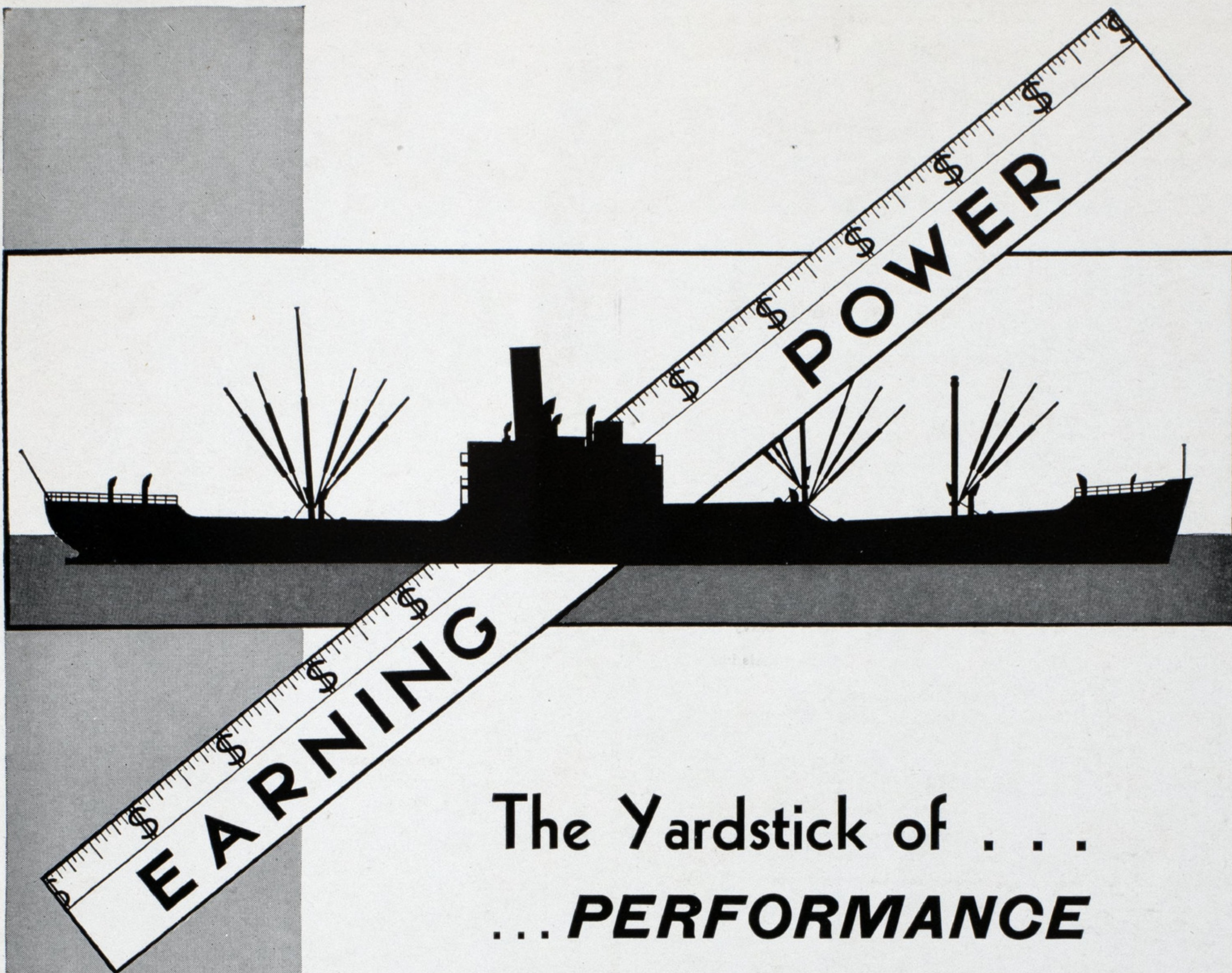
—o—

KNOWN OR UNKNOWN

Generally represents the difference between big and little business.

A known product sells with less sales effort because buyers have confidence in an advertised product. Non-advertised products are strangers to be doubted.

Don't handicap your business by failing to properly advertise your products.



The Yardstick of **PERFORMANCE**

MEASURED under the rule of efficiency — Earning Power — performance figures reflect the outstanding design and skillful workmanship of vessels built at NEWPORT NEWS.

Two unusual cargo ships are now under construction at NEWPORT NEWS. The arrangement of holds, cargo handling facilities and the economy of operation will make a distinct appeal to every American shipowner operating vessels of a similar type which will soon require replacement.

**Newport News Shipbuilding
and Dry Dock Company**

Newport News, Va.

90 Broad St., New York City

Winter Gales

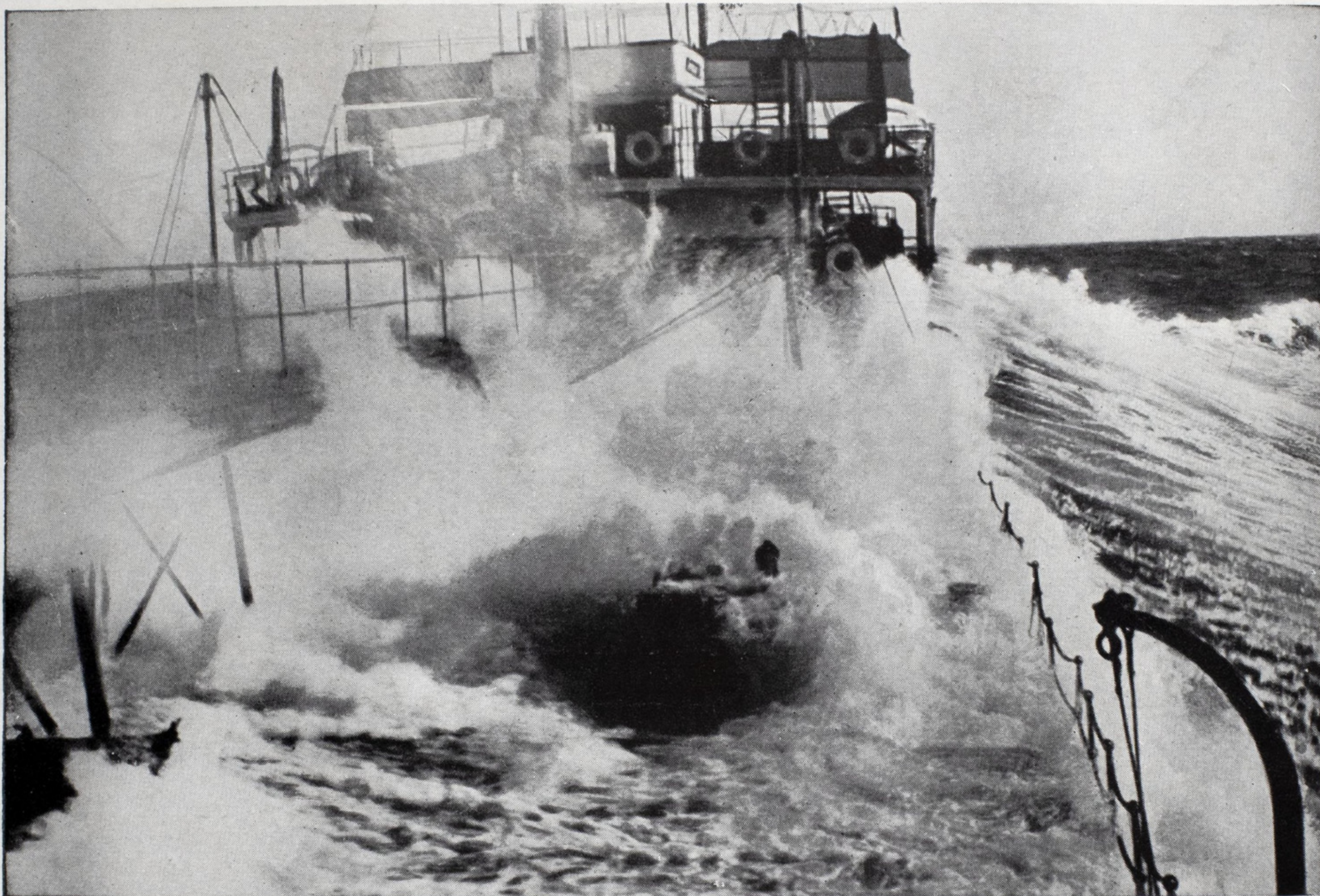


Photo from Underwood & Underwood

show up *Workmanship*

THERE is no better way to be sure that your ships are in condition to buck the winter gales than to have your repair work done in Bethlehem ship-repair yards. The shipyard is one place where modern production methods have not dethroned the craftsman. Every job offers its own set of problems, and only men of long experience, with thorough knowledge of ships and what the sea does to them can put them in the best condition to stand strenuous service.

The personnel of Bethlehem's ship-repair yards are masters of their craft. Many of them have spent the best part of a lifetime in the work. They know ships from truck to keelson—fishing boat, freighter, or "luxury liner." Whether the job is cleaning the bottom, tuning-up a turbine or decorating a lounge, the job will be done right at a fair price in one of Bethlehem's plants. These are located at Boston, Baltimore, San Francisco and San Pedro.



BETHLEHEM SHIPBUILDING CORPORATION, LTD.

General Offices: Bethlehem, Pa. General Sales Offices: New York, San Francisco. District Offices: Boston, Baltimore, San Pedro. Ship-Repair Yards: Boston Harbor, Atlantic and Simpson Works; Baltimore Harbor, Baltimore Dry Docks and Sparrows Point Works; San Francisco Harbor, Potrero, Hunters Point and Alameda Works; Los Angeles Harbor, San Pedro Works.